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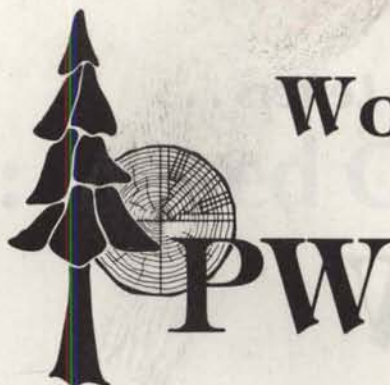
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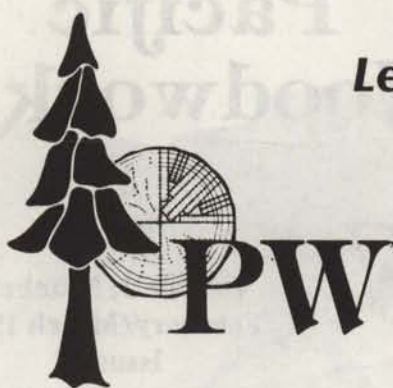
50 Wood Types by David Paul Eck

Imbuia

Cartoons on pages 17, 47, 49.

On the Cover: Kent Cornwell, one of the woodworkers in the 1983 Laguna Beach Festival of Arts. Also, a carved clock built by Sam Allen. See the articles in this issue.

Subscribe to *Pacific Woodworker*. See Reader Services and Back Issue Sales on page 46.



Letters . . .

Lumber Mill Found

When our last issue went to press, Marvin Smith of Castro Valley, CA, was looking for a custom lumber mill to saw his own walnut logs. David Agee of San Jose, CA, now offers such a service. David uses an enormous bandsaw, invented by Brian Burns of Palo Alto, CA, which accepts the largest logs. Contact David at 15314 Clydelle Ave., San Jose CA 95124 or call (408) 377-2296.

Bill Farnsworth, our regular Northwest columnist, is on vacation this issue. His column The Fourth Corner will be back next time. Replies to The Fourth Corner and information of interest to woodworkers in the Northwest should be sent to Bill c/o Pacific Woodworker, PO Box 4881, Santa Rosa, CA 95402.

Ideas Wanted

Do you have a time- or money-saving hint, idea or jig? Share it with *Pacific Woodworker* and win a free subscription, a set of back issues or a woodworking book. Send your previously unpublished suggestions to Box 4881, Santa Rosa CA 95402. (Thanks to Gene Kampa of Sunnyvale, California for this idea.)

Another Way To Draw an Oval

I noted in the December/January Issue of your magazine an article on how to draw a perfect oval. It was so complicated I gave up reading it. Many years ago, my father showed me a way to draw a perfect oval without complicated computations. First draw a straight line across a board or cardboard. Drive two small nails equally distant from the center point of the line. Tie a length of string around the nails and a pencil held half the desired width of the oval from the center point. Holding the pencil tight against the string, draw the oval. The length may be varied by changing the distance of the nails from the center point.

I have used this method of drawing ovals numerous times in my woodworking projects and find it very satisfactory.

Warren D. Boyd
Ceres, CA

Thanks to Mr. Boyd for his suggestion, which is the more traditional way of drawing an oval than the one we published in the last issue. The Shop Tip: Drawing an Oval that we published (see Pacific Woodworker, Issue 16, page 21) will produce more accurate results than Mr. Boyd's method. The choice, of course, depends on how much accuracy you need for your project.

Locating the Bosch Sander

I really enjoy your magazine. The article in the December/January issue by Robert O. Briggs was excellent. It was very informative and straightforward. In that article, Robert mentioned a Bosch 20,000 o.p.m. sander as his favorite. I checked with the local Bosch supplier, but there was no 20,000 o.p.m. sander in his catalog. Is this a new sander, or possibly a misprint?

Bruce Overby
Winston Salem, NC

I have a question regarding Robert O. Briggs's article. He recommends a Bosch orbital sander as his favorite, and says it produces 20,000 o.p.m. Is this a typographical error or is there really such a sander? My Bosch catalog lists three orbital sanders, all with 10,000 o.p.m. What is the model number of the sander Briggs recommends? Thanks for your help.

Dennis Specht
Homer, Alaska

Our thanks to these and other readers for your questions about this sander. We checked with the author and with Bosch's local Sales Supervisor, Bill Grant. There is indeed a Bosch 20,000 orbits per minute (opm) finishing sander. It's model #1288-034 (or #1288-934 with dust collection bag), 3.2 amp, 10,000 revolutions per minute (rpm). You'll need the model number to find this in a catalog or from a local supplier, since only the rpms are shown on the machines themselves.

continued on page 49

Pacific Woodworker welcomes your comments, pro or con, about articles and information we publish. Send your letters to Editor, Pacific Woodworker, PO Box 4881, Santa Rosa, CA 95402. Letters may be edited for publication.

Project: Carved Clock

by Sam Allen

Sam Allen's carved clock is fun to make using power and hand tools.

Carving is more fun than ever with power carving tools and routers available to take the drudgery out of removing large amounts of wood. Here's a project that even beginning wood carvers can produce with impressive results.

Start by enlarging the pattern using the grid method, then transfer the pattern to a piece of hardwood. Don't bother to transfer the numerals at this point because the face area must be carved out first. Mark the location of the shaft hole in the center of the face.

Battery operated clock movements are available at many craft and hobby stores or by mail from Klockkit, P.O. Box 629, Lake Geneva, Wisconsin 53147. Drill the hole for the hand shaft of the movement. Then use a router to recess the clock face $\frac{3}{16}$ ". Turn the board over and hold the clock movement against the back with the hand shaft in its mounting hole. Trace around

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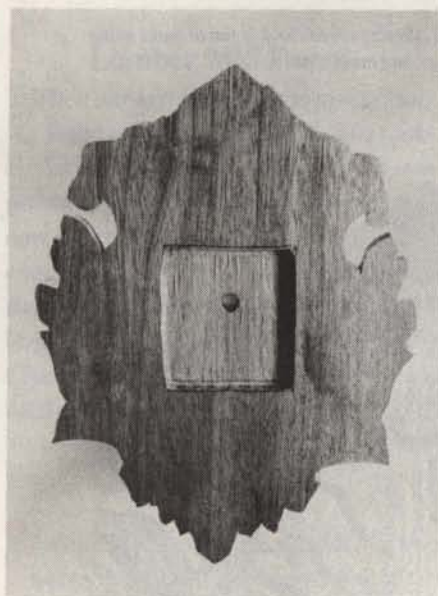
About the author: Sam Allen has been carving wood since he was twelve years old. Currently he divides his time among woodworking, freelance writing, and taking care of a mountain camp near Provo, Utah.



Photo 2: The author recommends using small carving chisels for detail work.

the outside of the movement and then recess the area for the movement using a router (see Photo 1). The depth of the recess will vary depending on the length of the hand shaft on the movement you buy. Using chisels and sandpaper smooth the clock face and movement recess.

Photo 1: Use a router to recess an area for the clock movement on the back of the clock.



After the recesses are complete, cut out the outline of the clock using a jig saw or coping saw. (By waiting until this point to cut out the clock, you can clamp the work more securely during the routing operations.)

Now, using a power carving tool, such as the Dremel Moto-Tool, rough out the carving. Hollow the leaves in the center to give them more visual depth. Detail carving can be done with a power tool also, but small carving chisels give more control (see Photo 2).

continued

The clock pattern can be enlarged using the grid method.

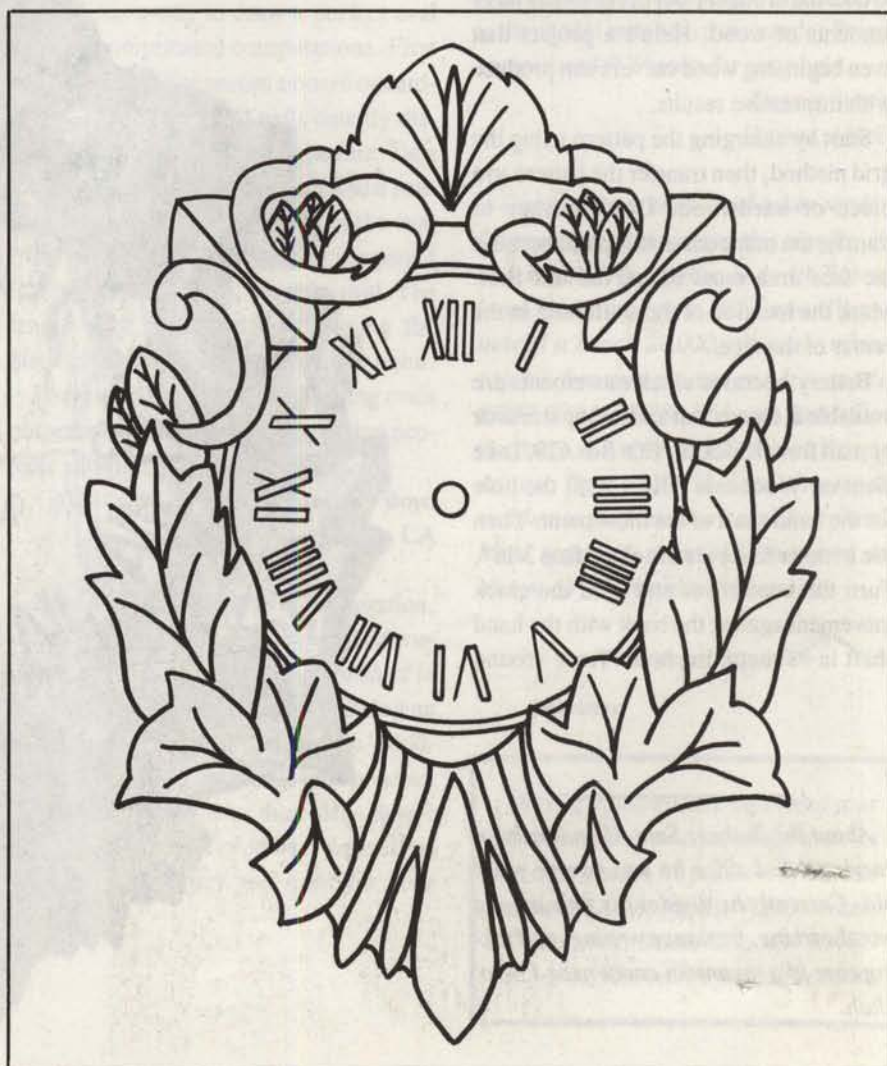


Photo 3: Using a small chisel cut V-shaped lines to make the numerals.

Now transfer the Roman numerals from the pattern to the clock face and use a small chisel to cut the "V" shaped lines that compose the numerals (Photo 3).

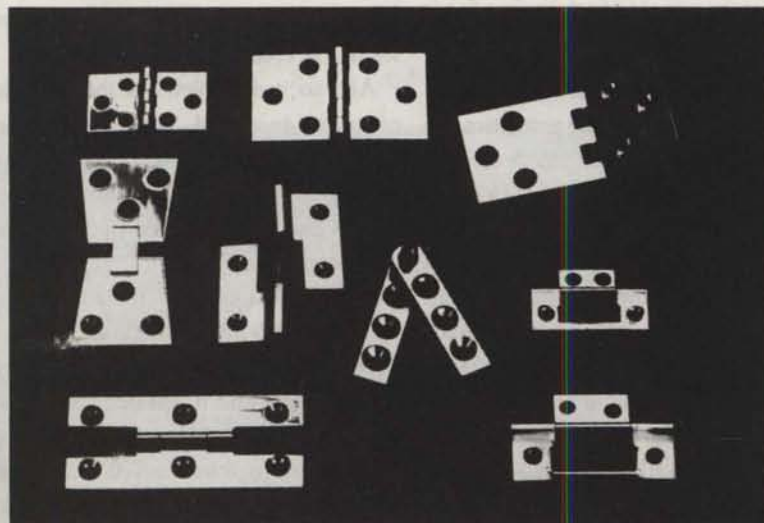
When all the carving is complete, finish the clock using an oil finish and install the clock movement. If the clock movement you purchased has a built-in wall hanger, as most do, once the movement is in place you can hang up the clock and admire your handiwork.



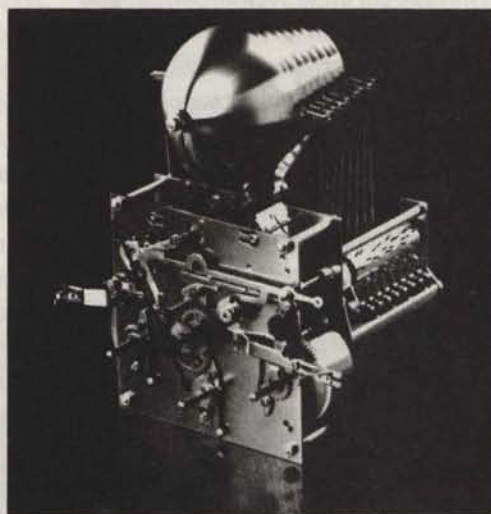
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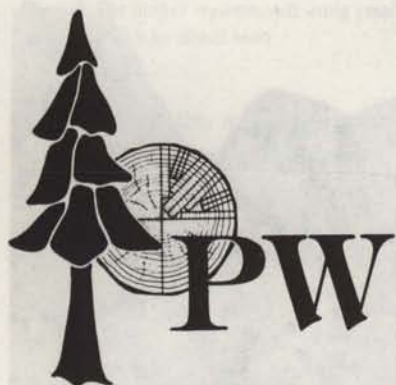


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Woodworking Co-Operative

California Woodworkers' Creative Solution to Shop Costs

by Mark Brady

These days the newspapers say that interest rates, inflation, and energy expenses are stabilizing. Maybe that's so. But nevertheless, given the cost of tools, other overhead and start-up costs, how can the creative, competent, and evolving crafts-person even begin to imagine setting up an independent studio or workshop? While indeed such a feat may be difficult to imagine, such an accomplishment is even more difficult to singlehandedly pull off and sustain.

Not to be put off by such obstacles, three woodworkers in urban Northern California faced these problems in 1975 and effected a simple and satisfactory solution which continues in successful operation today—The Southbay Woodworker's Co-Operative.

Essentially it began like this: Don, Dennis and Brad knew each other as fellow woodworkers, each with a variety of power tools housed in separate makeshift woodshops. In former times, with cars parked in the center, those shops might have been mistaken for garages. Recognizing a basic affinity that people who work in wood seem to share, the three men began



Mark Brady amidst what he calls "orderly disorganization."

discussing the possibility of garaging their different tools all under one roof. The common problem they all faced was the desire to convert their workshops (garages) into offices or family rooms. None of the three thought that the noise and dust inherent in a fully-equipped wood shop would be compatible with the aesthetics of family rooms or offices, so the three acquaintances began looking into the possibility of renting somebody else's garage instead.

During that search they stumbled onto a 1700 square foot commercial space available to them for \$435 per month. No lease was required, and the price seemed reasonable enough for the location and the time, so they rented the space on a month-to-month basis and proceeded to set up shop (so to speak). No sooner had the first

counters, shelves and work tables been built and the tools moved in, when the word filtered out into the community. The original three were immediately joined by Bruce and Marshall. Within a single month the shop was completely set and ready to go; it had two table saws, a jointer, a radial arm saw, a large compressor with a complete air system, a 36" belt sander, a planer, several dozen pipe and "C" clamps, and all the varieties of glue and sandpaper a sawdust jockey could ever envision.

Once "established," word-of-mouth continued to spread the news about the co-operative, and in the second month the starting five were joined by Walter and Jonathan, two more large work tables, a band saw, a stereo, a variety of router jigs, a floor model jigsaw, a drill press, a lathe, and a wide assortment of hand power tools. This certainly seemed like an idea that was waiting at creation's edge to unfold.

And so it did. News of the assembly continued to spread. Wood and tool suppliers and hardware vendors soon came calling, offering good deals for bulk purchases and discounts for many of their more expensive items.

Around this core of initial members came other woodworkers and novices alike, all with tips and tools of their own, and by year's end it was decided that no new members would be offered space until a current member moved on. When I found the Co-Operative (while on a walk through the Yellow Pages in 1980) it held

About the Author: Mark Brady is a licensed California General Building Contractor. Readers wishing to know more about the forms, finances and guidelines of the Southbay Woodworker's Co-operative may send \$1 c/o the author to PO Box 1094, Menlo Park, CA 94025.

eleven members and had been operating successfully for a full five years. Coincidentally, at this time Don, Dennis and Brad, the three founding members were all individually deciding to move on, and so there was space immediately available for me. I took it, but not without some real reservations: What if I didn't like the other members? What about all this machinery I knew absolutely nothing about? I didn't want other people ruining my \$90 double-ground, carbide-tipped blade, and what would happen if my tools or materials got stolen? How would eleven people work in here at once? Who would decide who works where? My list of concerns went on and on.

Acknowledging these as genuine apprehensions, I became a member anyway and told myself I would leave after two months if I didn't like the way things went.

Well, here we are some years later, and things have indeed "went" albeit not always smoothly and not always the way I might possibly have chosen for them to. However, the view from the outside looking in is considerably different from the one inside looking in.

First of all, as a Co-Operative member each person shares responsibility for the shop mutually, personally, and equally. We all agree to operate within established, written guidelines by the simple fact of our becoming members, and all of us pretty much do so most of the time. When someone doesn't abide by the guidelines it is frequently with good reason and usually points to some need for changes. Over the

25 months that I have been a Co-Op member a number of changes have had to be made (e.g. guidelines clarified, dues increased, storage space reapportioned, etc.), and whatever reservations I had that actually came up, I was able to co-operatively resolve. Several times my tools have been broken and either the responsible individual or the Co-Op entity (by agreement) has seen to the repair. Once someone did inadvertently use a sheet of my initialed oak plywood (stored back to back with his) but he willingly replaced it. As for eleven people effectively utilizing the work space, only rarely has it been a problem. The largest number of people I've ever worked with in the shop at any one time (except for pre-planned clean-up days) has been five, and then only rarely.

But on occasion two people is too crowded for me, depending on how I might be feeling on a particular day. On those occasions I simply come back when I'm feeling better or at a more seldom-used time (mornings before 8:30).

By and large the mood and spirit in the shop are light and truly co-operative. In part I suspect this is so because the Southbay Woodworker's Co-Operative has a fairly loose structure. Briefly, it works like this: there are a maximum of eleven equal members who pay a first month's dues of \$70 and a security deposit of equal amount. Each has a registration form on file with a home address, phone number and person(s) to be contacted in an

emergency. This is completed, a \$5 key deposit tendered, and then each person is given a key and the guidelines to read. This accomplished, he or she becomes eligible to use the shop at any hour, day or night. The \$770 dues ($\$70 \times 11$ members) are spent each month primarily on rent (\$655), phone (\$15), liability insurance (\$40), gas and electricity (\$35 average), and sandpaper, glue and repairs (\$25). All major power tools are individually owned but available for general use; the Co-Op is financially responsible for maintenance and repairs. Special, individually owned tools (e.g. routers, electric or manual hand planes, diamond blades, etc.) are kept under personal lock and key in the shop, but are usually available for others' use with the owner's permission and supervision. Some items have been bought and purchased by the Co-Op as an entity, such as a vacuum-powered dust collection system, a large (60 gallon) air compressor, and a number of air-powered tools (staplers, nailers, dual-action sanders, etc.), and these are all available for general use by the membership.

A treasurer and assistant treasurer are voluntarily chosen to sign the lease, sign checks, make needed shop purchases and deposit dues. Members pay their dues in the following manner: in January every year, each member gives the acting treasurer 12 personal checks for \$70, dated the 20th of each one of the months to come. As the 20th of say, March comes along, the acting treasurer simply deposits the 11 checks previously dated March 20th so

Other Co-op members at work and pleasure.



that the money is always available to pay creditors. When someone leaves the Co-Op, the unused pre-dated checks are returned, along with the security deposit. When the key is returned, so is that deposit. Departing members are also encouraged to find replacements for themselves.

One of the agreements I made with myself when I joined the Co-Op (since it would not be my full-time occupation) was that I would unfailingly put in enough time each month to construct and sell sufficient pieces to cover at least the cost of membership. There was a free scrap barrel from which I could produce a myriad of small items: cutting boards, lap desks, trivets, signs, stools, boxes, and anything else my imagination could contrive. These all turned out to be projects I never got to; the first month after I joined, a local librarian heard about me through friends and ordered \$3000 worth of simple

plywood bookcases for the library storeroom! So much for simply paying dues.

And so it's been for several years now. One job has consistently led to another and that to another. In this time I've learned a tremendous amount about woodworking. I've also expanded my interest and ability markedly in the craft. But most importantly, I've learned a lot about people. And about cooperation, probably best pointed up by the Co-Op experience of Jackie.

Jackie joined the Co-Op about four months after I did. She had a minimal woodworking background, but was a talented artist and designer. Most of her free time she spent in the shop for about six months straight, asking questions and learning all she could. At the end of six months she decided to go into business making and selling wooden children's toys. Realizing that this new full-time enterprise would be making new and excessive

demands on space and machine time in the shop (since it's really not designed or intended to support any single person working there 8 hours a day, 5 or 6 days a week), Jackie asked at a meeting for ideas and the group's support in this undertaking. Immediately a plan was worked out: new storage space was built, an acceptable work schedule for her was agreed to, and a further agreement to re-evaluate the situation in 4 months was made. Well, in 3 months time, demand for Jackie's toys was such that she not only attracted a partner with venture capital and new design ideas, but she also had to hire three employees and buy several additional jig saws and sanders. Needless to say, Jackie soon found a place of her own to successfully set up and operate her new full-time business, Warm Wood Gifts.

For me, and for the other Co-op members, working together, solving problems as they arose, sharing tools, ideas, and information, has enabled many of us to do things we might never have accomplished on our own.

Parts of this article have been previously published in The Mother Earth News.



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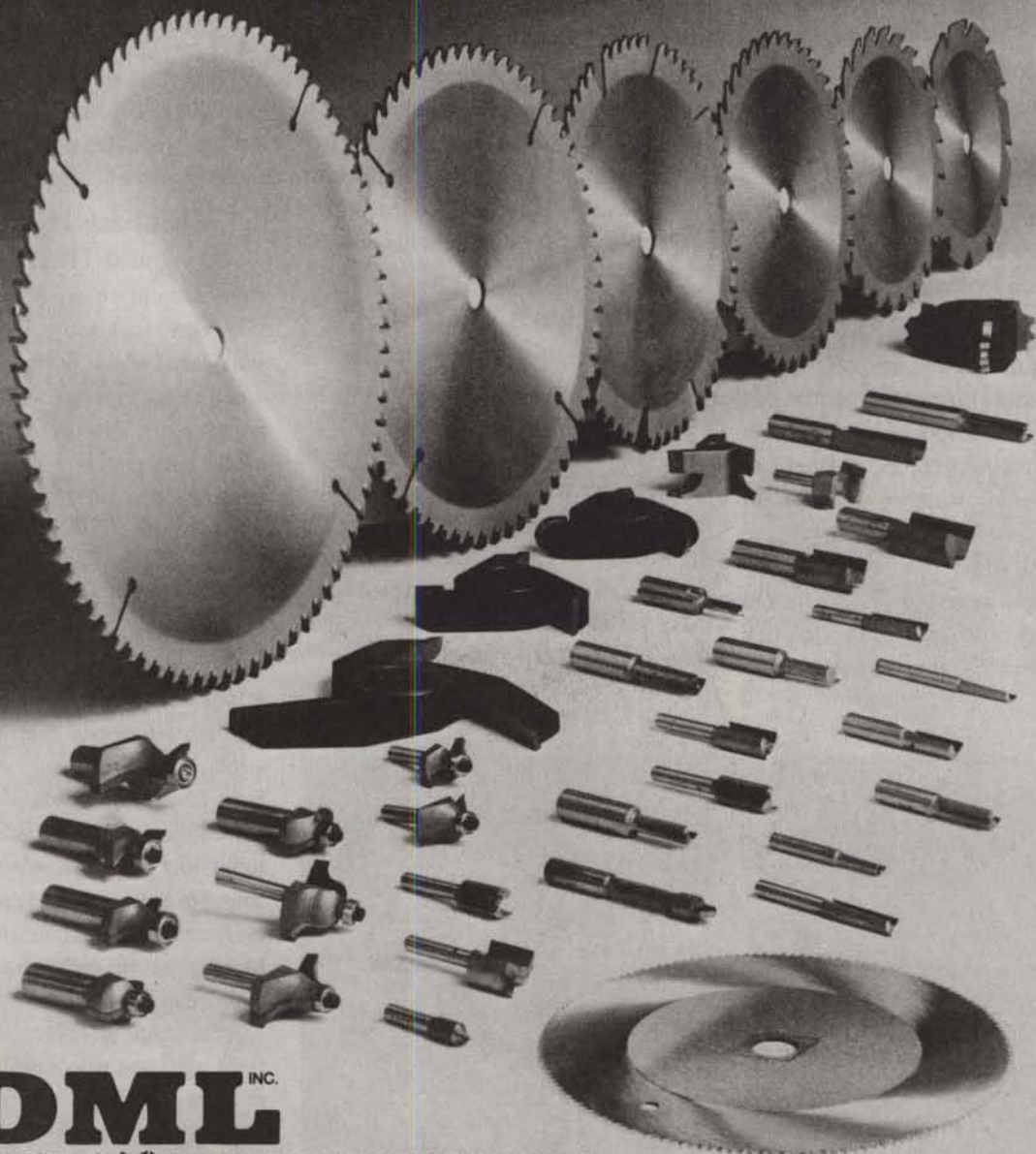
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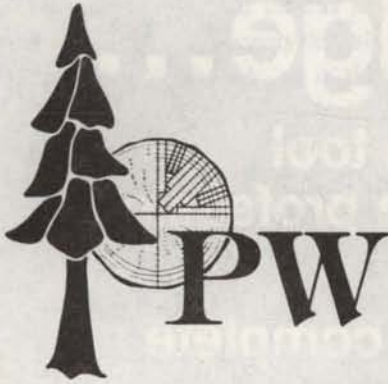
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Finishing Techniques

Part 2: Stains and Finishes

by Robert O. Briggs

In the last issue of Pacific Woodworker the author discussed surface preparation prior to finishing. This second part of the series covers the types of products used in finishing: stains, dyes, bleaches, wood fillers, lacquers and varnishes.

There are lots of ways to change the color of wood. Stains, dyes and bleaches are often used for this purpose.

Stains

They are messy, they smell bad, they wreck my nice clothes. But boy, can they make the wood look nice!

Oil Stains

The types most often available to the general public are pigments ground in oil, with thinners and driers added. They can be had in a rainbow of colors, and they can be mixed indiscriminately (even different brands), to make the colors not otherwise available. Also, they can be sprayed on, smeared on with a rag, brushed on, etc. Oil stains are very forgiving and easy to work with, as long as any excess is thoroughly

dried off with a rag. Also, the piece must dry overnight before you continue finishing. In order to achieve a particular effect, I sometimes work with up to twenty open cans of stain and several rags, mixing and blending right on the wood until I get what I want.

Spirit Stains

These are pigments dissolved in volatile thinners such as lacquer thinners, alcohol, etc. They are most often used by professionals or others with spray equipment, because they are difficult to apply with a rag or brush. They are capable of producing beautifully clear, bright colors, and they dry almost immediately. Spirit stains make a fantastic base color over which oil stains can be applied for added depth.

Dyes

I have had considerable success with N.G.R. (non-grain raising) stains and aniline dyes.

Chemicals and Bleaches and Their Uses

Household chlorine bleach can often take out an aniline dye, without bleaching out natural wood colors. *Nutone* two-part wood bleach is very effective at lightening wood colors. Part one is a solution of lye, while part two is a strong solution of hydrogen peroxide. When using *Nutone*, take extreme care with both parts! Oxalic acid will also bleach wood, and often will take out ink, rust, and water marks.

Potassium permanganate used to be called walnut crystals. Dissolved in water it looks like grape juice, but it turns even the lightest woods deep brown. It is a strong oxidizing agent, so keep it away from flammables. *Potassium dichromate* (sometimes sold as potassium bichromate) looks like orange Koolaid® when dissolved in water and has a different effect on every wood. It turns pine green and ancient looking; it turns mahogany deep red. *Ammonia* can turn many woods brown.

After staining or bleaching but before finishing, some woods may require the use of wood fillers (see box, next page).

continued on page 30

Wood stains. From left, two thin oil-based stains, non-grain raising stain, and heavy oil-based stain





Using Wood Filler

by Robert O. Briggs

Paste wood filler is usually silex ground in linseed oil, and it's available in natural cream color or pre-stained to various colors. It is used to fill the pores on open-grain woods like walnut, oak, and mahogany. It is of no use on close-grain woods like birch, maple and pine. The wood filler comes as a gunky goo in a can and must be stirred with a stick, like stirring taffy in maple syrup. Universal paint tints, which every paint store carries, can be added to make any color desired (see Photo 1 below), but I prefer to buy filler already tinted.

Thin the filler with *V. and P.M. Naptha* to about the consistency of varnish (see Photo 2 at right).

To apply the filler properly I gather several items to my work area (see Photo 3): 1-an open bowl full of thinned, tinted filler; 2-a brush to paint it on; 3-some burlap to clean off most of the residue;

Photo 1: Paste wood filler, along with universal tints which may be used to color the filler.



4-lots of soft rags; 5-an apron; and 6-a glass of fresh squeezed orange juice (for the strength to carry on).

The process works like this:

1-Put on the apron so your nice clothes don't look like mine when you are done.

2-Drink orange juice, toss care to the wind, and then

3-Brush the filler across the grain over about 2 or 3 square feet of surface.

4-Watch the surface until it changes from glossy to dull, also called "flashing off" (see Photo 4).

5-Drink more orange juice while waiting.

6-When the filler has flashed off, use burlap to remove as much as possible, rubbing *across* the grain. In fairness, I should tell you that some craftsmen feel burlap is too coarse and will pull too much filler out of the pores. So they eliminate this step. I recommend that you experiment and decide for yourself.

7-Clean all residue from the wood with the soft rags, rubbing with the grain (see Photo 5). If you miss a little spot, it will set up like concrete and be stubborn to remove the next day, so pay extra attention here.

8-Paint the next area with filler, and repeat. If you try too large an area at one time, the filler will flash off, and begin to set up before you can get it cleaned off.

9-Stand back and admire the wood. Let the filler dry overnight. Otherwise it will make lacquer turn cloudy.



Photo 2: Thin the filler to the consistency of a stain. It works well even when very thin.



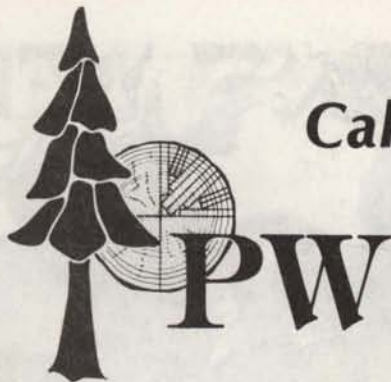
Photo 3: What you need for filling—filler, thinner (naptha or paint thinner), a towel, a cheap brush and lots of rags.



Photo 4: Brush the thinned filler onto the surface of the wood and wait for the gloss to disappear. This is called "flashing off."



Photo 5: Clean off the filler residue with a rag, rubbing first across, and then with the grain.



Calendar & Announcements

Events of Interest to Woodworkers . . .

Through Feb.5. Sheridan, OR.

The Lawrence Gallery Woodworking Show. Contact The Lawrence Gallery, P.O. Box 187, Hwy 18, Sheridan, OR 97378 or (503) 843-3633.

Feb. San Diego, CA.

Boatbuilding New England Style. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Feb.3 or 4. Los Angeles, CA.

Photographing Your Work. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

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Log Cabin Construction. Contact Gary Peterson (916) 938-4463 x 201.

Feb.4. Alameda, CA.

Lathe Tool Making Workshop. 10:00 am to 4:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.4. Berkeley, CA.

Decoy Carving Demonstration with Chester Wilcox. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Feb.5. Alameda, CA.

Spindle Turning. 10:00 am to 4:30 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.5. Alameda, CA.

Router Seminar. 11:00 am to 2:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.6-10. Berkeley, CA.

Building a Lapstrake Sailboat workshop with Simon Watts. The Cutting Edge, 1983 4th St., Berkeley, CA 94710 or (415) 548-6011.

Feb.7-March.13. Los Angeles, CA.

Sculpture in Wood with Ken Goldman, Tuesdays. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Feb.7-Apr.10. Oakland, CA.

Beginning woodworking class. Contact California College of Arts and Crafts, 5212 Broadway at College, Oakland, CA 94618 or (415) 653-8118.

Feb.8. Los Angeles, CA.

Basic Routing. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Feb.9-Apr.12. Oakland, CA.

Continuing Woodworking with Gail Fredell Smith. Thursday evenings from 7-10. Contact Tom McGuire Calif. College of Arts and Crafts, 5212 Broadway at College, Oakland, CA 94618 or (415) 653-8118.

Feb.9-23. Berkeley, CA.

Frame Carving with Miles Karpilow, Thursdays. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Feb.10-12. Alameda, CA.

Session II Joinery Workshop. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.11. Alameda, CA.

Woodline's annual book sale with Sam Maloof. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.11.Oakhurst, CA.

Exotic Wood Gallery Exhibit with William Hunter. The Exotic Wood Gallery, 41368 Hwy 41, Oakhurst, CA 93644 or (209) 683-8990.

Feb.13. San Diego, CA.

Special Meeting for Fine Woodworkers Association members. Contact San Diego Fine Woodworkers Assoc., P.O. Box 99656, San Diego, CA 92109.

Feb.18. Alameda, CA.

INCA Demonstrations. 10:00am to 4:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.18. San Diego, CA.

The Nature of Wood with Paul McClure. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Feb.18. Berkeley, CA.

Toymaking with Ken Hughes. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Feb.18-19. Berkeley, CA.

Two day Chairmaking Workshop with Grew Sheridan. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Feb.20-24. Los Angeles, CA.

Building a Lapstrake Sailboat workshop with Simon Watts. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Feb.21. San Diego, CA.

Using Traditional Woodworking Tools. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Woodworking on TV

"The Woodworker's Show" is now on the Satellite Program Network (SPN) every Sunday at 12 noon Pacific Standard Time. Check with your local cable TV system for the SPN channel in your area. Topics include planning and building a home workshop, making a platform bed, and others. Plans discussed on the show will be available from The Woodworker's Store, 21801 Industrial Blvd., Rogers, MN 55374.

Carving Magazines Merge

Power Press magazine, which catered to power wood carvers, has been sold to Kent Courtney, publisher of *The Carvers Journal*. The latter magazine will be of interest to carvers at all stages in their development. Further information about *The Carvers Journal* can be obtained from Box 626, Broussard, LA 70518.

Juried Craft Market

The Goodfellow Catalog Press is looking for artisans to apply for exhibit space and cash prizes for the Oakland (CA) Festival at the Lake. The Festival will be held June 1-3, 1984, and the application deadline for entries is March 15. For more information send a self-addressed, stamped envelope to PO Box 4520, Berkeley, CA 94704 or call (415) 428-0142.

Feb.22-Mar.21. San Diego, CA.

Veneering: Application and Technique with Pat Edwards, Wednesdays. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Feb.23. Los Angeles, CA.

Advanced Routing. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Feb.25. Alameda, CA.

Joinery Seminar. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.25. Fresno, CA.

Woodturning Techniques with Bill Livingston. Sat.9am to 12 noon. Bill's shop, 6666 N. Angus, Fresno. RSVP (209) 781-4074 or (209) 251-0404.

Feb.25-Mar.31. San Diego, CA.

Cabinetmaking with Chuck Davis. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Feb.25. Fresno, CA.

Woodturning Techniques with Bill Livingston. San Joaquin Fine Woodworking Association.

Feb.25. San Diego, CA.

Dry Bent Lamination workshop with Martha Rising. The Cutting Edge, 7626 Miramar Road, San Diego, CA 92126 or (619) 695-3990.

Feb.25-26. Oakhurst, CA.

Wood Inlay with Chris Cantwell. Contact Allen Wenglin, 41368 Hwy 41, Oakhurst, CA 93644 or (209) 683-8990.

Feb.25-26. Alameda, CA.

Intermediate Joinery. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.25-Mar. 31. San Diego, CA.

Comprehensive Cabinetmaking (with UCSD.) The Cutting Edge, 7626 Miramar Road, San Diego, CA 92126 or (619) 695-3990.

Feb.26. Alameda, CA.

Table Saw I. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.26. Alameda, CA.

Table Saw II. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Feb.27. Berkeley, CA.

Shaker Boxes workshop with John Kassay. Mons. to Mar. 12. The Cutting Edge, 1983 4th St., Berkeley, CA 94710 or (415) 548-6011.

Feb.27-Mar.2. Los Angeles, CA.

Building a Lapstrake Sailboat workshop with Simon Watts. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Mar.3. Oakhurst, CA.

Wood Inlay with Chris Cantwell. Contact Allen Wenglin, 41368 Hwy 41, Oakhurst, CA 93644 or (209) 683-8990.

Mar.3&10. Berkeley, CA.

Duck Decoy Workshop with Chester Wilcox. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.



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Mar.3-4. Alameda, CA.

Third Annual Carving Show. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.5 & 12. San Diego, CA.

Touch-Up and Repair of Wood Finishes. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Mar.10. Alameda, CA.

Architecture of Greene & Greene with Done Braden. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.10. Berkeley, Ca.

Make Your Own Carving Tools with Bruce Britton. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.



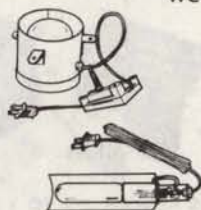
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Mar.10 & 11. Alameda, CA.

Intermediate Joinery. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.10. San Francisco, CA.

Application deadline for American Craft Council Craftfair for Sept. 84. Contact American Craft Enterprises, Inc., 256 Main Street, New Paltz, N.Y., 12561 or (914) 255-0093.

Mar.11. Alameda, CA.

Router Seminar with Ron Mackrodt. 11:00 am to 2:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.12. San Diego, CA.

General Meeting for San Diego Fine Woodworkers Association. Program includes speaker on the Art of Boat Building. Contact Fine Woodworkers Assoc., P.O. Box 99656, San Diego, CA 92109.

Mar.12-26. Los Angeles, CA.

Woodturning Techniques with Jerry Glaser, Mondays. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Mar.15. Oakland, CA.

Application Deadline for Festival at the Lake Craft Market in Oakland June 1-3. Contact Festival Craft Market, c/o Goodfellow Catalog, P.O. Box 4520, Berkeley, CA 94704.

Woodworking Show in San Francisco

The second *Working With Wood* show opens April 6 at the Trade Show Center in San Francisco. Among the scheduled speakers are Sam Maloof, James Krenov, Ian Kirby, Michael Dunbar and Roy Underhill, Master Housewright at Colonial Williamsburg.

Tickets for the show, including all seminars, are \$4 in advance (\$5 at the door). For more information contact Pam Hazelton, Exhibitors Showcase, PO Box 2518, Redwood City, CA 94064 or (415) 366-5033.

Pacific Woodworker will publicize events of interest to woodworkers. Send complete information to Pacific Woodworker Calendar, PO Box 4881, Santa Rosa, CA 95402.

Mar.17. Alameda, CA.

Lathe Tool Sharpening with Steve Johnson. 10:00 am to 4:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.17. San Diego, CA.

Decorative Decoy Seminar with Bob Berry. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Mar.17. Berkeley, CA.

Hand Plane Workshop. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Mar.17-31. Los Angeles, CA.

Marquetry, Saturdays. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Mar.17,24,31 & Apr.1. Alameda, CA.

Decoy Carving. Fee: \$150 for all four days, decoy blank included. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.18. Alameda, CA.

Face Plate Turning. 10:00 am to 3:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

continued on page 51

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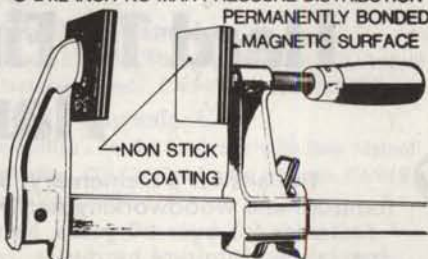
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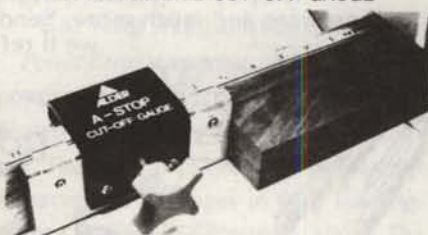
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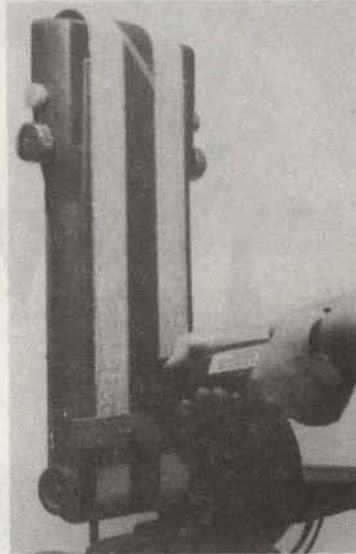
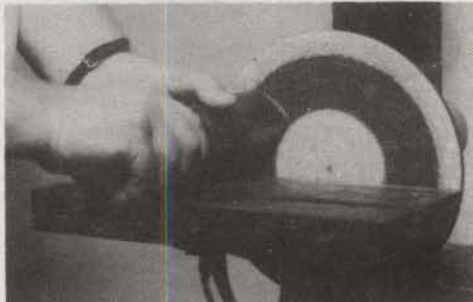
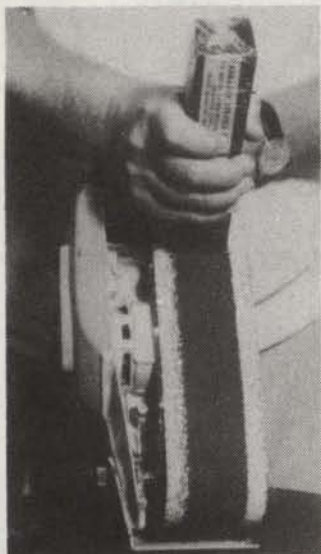
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A Pacific Woodworker Show Review



Festival of Arts

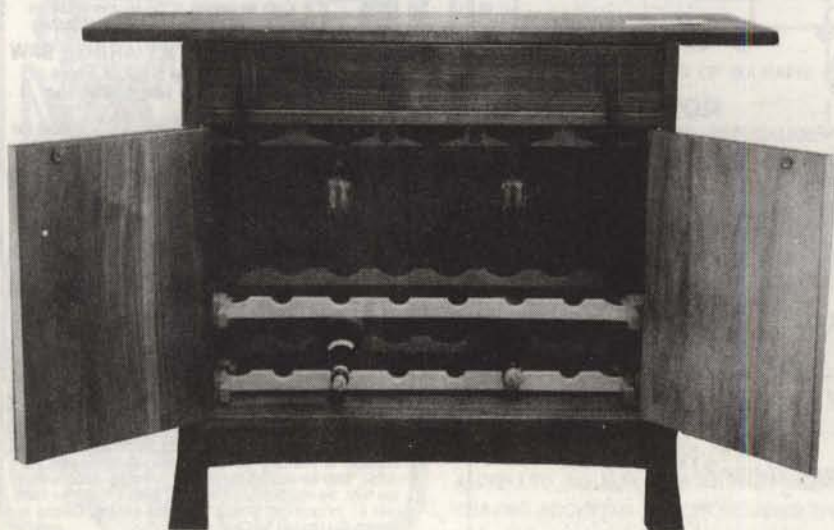
Laguna Beach, California

by Steven Poverny and Sheldon Harris



The 1983 Festival of Arts, held last summer in Laguna Beach, California, marked the 50th anniversary of this summer arts festival. Among the 165 exhibitors were seven woodworkers in the Furniture and Handcrafted Wood categories. These seven were selected from 15 applicants in these categories for this juried exhibition and sale. Thousands of visitors attended the show during its 51-day run.

(Below): Black walnut wine cabinet by Tim Harrison. (Left): Tongue and groove drawer bottom.

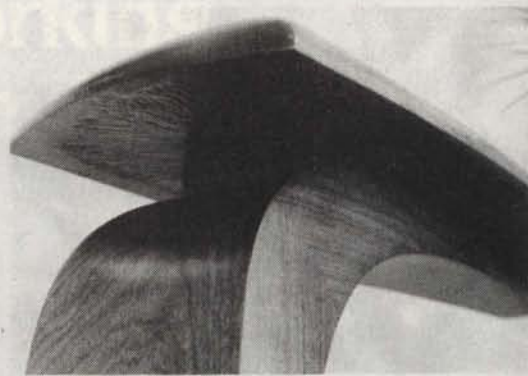


The exhibition's long run in Southern California weather was hard on the woodworking exhibits. The fact that all the pieces of woodworking survived not only the sun, rain and rapidly changing humidity, but also some "physical abuse" by spectators, testifies to the quality of construction of the furniture and other items.

The Woodworkers

Jon Seeman of Laguna Beach has exhibited at the Festival of Arts for several years. Jon particularly likes koa, finished with oil. This past year Jon displayed a glass-topped table of koa and Indian rosewood, and a music stand of Guyana purpleheart and Indian rosewood (see photos on page 20). Jon's portfolio also includes entryways and stairway bannisters, as well as hand-crafted furniture.

Kent Cornwell displayed a sculptural table of Honduran rosewood (see photos above). The sweeping curve of the base was veneered with matching wood to cover the laminations. Kent left the gouge marks unfinished on the underside of the one foot high table. On the cover of this issue Kent is shown working on a Burmese padauk occasional chair in his shop on the last day of the Festival. This chair is a contemporary interpretation of a classic Chinese design, using traditional Chinese joinery. The piece forms the nucleus of a line of limited production, handmade furniture



Kent Cornwell's rosewood table.

that Kent has designed, to be produced under his name in the Orient and scheduled for release this Spring in North Carolina.

Tim Harrison showed a well-made black walnut wine cabinet, with unique tongue-and-groove drawer bottoms (see photos on page 18). Tim also displayed a black cherry music stand with walnut ac-

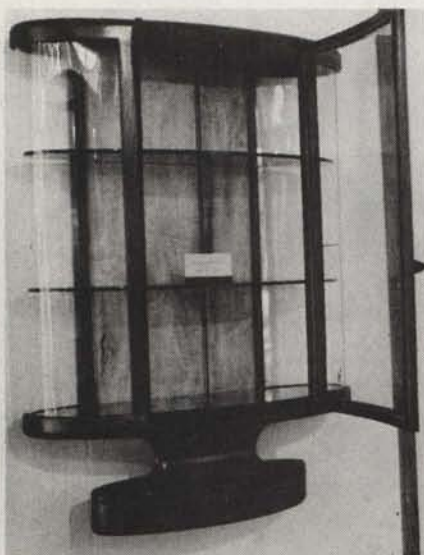
cents. The height of the stand is adjusted by means of a wedge mechanism.

Ron Bray's exhibit featured intricate marquetry and carving. His standing cabinet (see photo on page 20) shows use of these techniques as well as reflecting Ron's frequent use of antique glass.

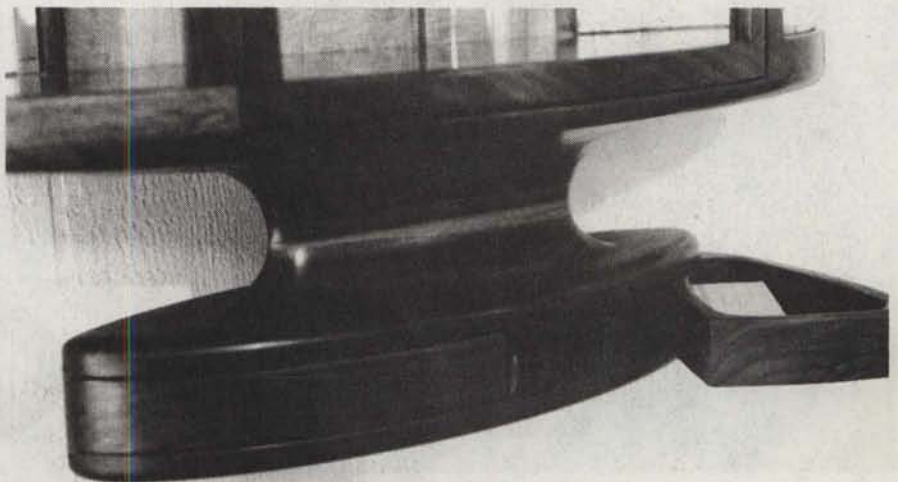
Randy Bader displayed at the Festival for the third year in a row. His work (see

photos below) included a wall cabinet of sculpted walnut and molded glass. The glass shelves are backed with curly maple, and the doors are held with a spring latch, which releases when pressed. Randy kept a supply of business cards in the swing-out drawers in the bottom of the cabinet. He also showed a rocking chair and an elliptical table. In yet another way to draw an ellipse (see also *Pacific Woodworker*, Issue 16, and *Letters*, this issue) Randy used a computer to plot his oval.

Randy worked hard at promoting the cause of woodworking in the Laguna Beach area during the Festival. He even set up an audio-visual display featuring several artists and craftsmen at work in their studios.



(Left): Randy Bader's walnut and glass wall cabinet.



(Below): The drawers in the bottom pivot from the corners.

Torben Helshoj, fresh from a four-year apprenticeship in Copenhagen, Denmark, qualified for the Festival in his first year in California. Torben's preference for lightly colored woods such as cherry and maple was evident in his exhibit of a sling chair (not shown in the photographs here) with a bleached maple frame finished with lacquer and a crafted leather seat.

Kent Cornwell at work during the Festival.

The work of **David French** was the only one accepted this past year in the "Handcrafted Wood" category. His sculptured clocks, boxes and mirrors (not shown in these photographs) were mostly of padauk and purpleheart.



Photography by Steven Poverny

Standing cabinet by Ron Bray.



Jon Seeman's purpleheart music stand.



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Carbide Used: C4

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Focus on Carving



Carving Miniatures

by William H. McMaster

In the last two issues, I discussed the tools used in carving miniatures, plus eight steps in carving miniatures, from choice of wood to finishing. This time, I will talk about some specific carving techniques for miniature work.

Carving Techniques

Most important, be sure to have extremely sharp tools and complete tool control while carving. Sharpness is maintained by frequently honing the cutting edge of each tool. The shallowness of the sharpness angle causes the blade to become dull even though you may be working in soft woods.

Since you are probably wearing magnifiers when carving miniatures (see Issue 15, October/November 1983, page 10), it is best to keep your tools in order according to size and sweep. In this way you will not lose time hunting for a particular tool. Each tool should have its place and be

put back there when you switch tools.

Although the tools are small, you will use both hands to provide the necessary cutting force and guidance, since it is difficult to have complete control over a tool if you only use one hand. The miniature gouges are held differently from standard carving tools. The four basic methods used are shown in Figures 1 through 4, for both *pull* and *push* cutting techniques. Except for the grip shown in Figure 3, you use either the thumb or the forefinger of the left hand to provide the counter force you need to give you complete control over the tool. Either hand or both should be resting on

the piece to add steadiness to your guidance of the tool. Using this firm two-handed grip, it is easy to make very delicate cuts.

When you start carving, be sure to leave support areas for weak parts of the figure such as unsupported arms and legs. The supporting pieces of wood can be removed once the thin region has been carved as much as possible. When carving on these weak sections, carve in the direction from weakness to strength to prevent chipping or breaking. It may be necessary to apply pressure on the wood from the opposite side. This can be done with the fingers of the left hand while the thumb is being used to guide the cutting edge.

When blocking out, use the deep gouges. These can be used down to rather delicate sections of wood, since the thinness of their blades results in less pressure being applied. The more fragile a region gets, the less wood that should be removed with each cut. Start with the deep sweeps

Bill McMaster of Livermore, California, is chief of the Education Division of the California Carvers Guild and teaches woodcarving classes on a regular basis. Woodcarving has been Bill's avocation for many years, and he has won numerous awards at juried shows of the California Carvers Guild.

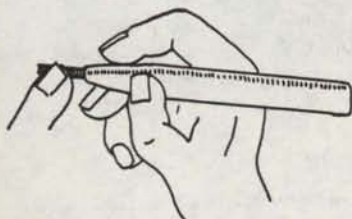


Figure 1. Pencil Grip — Push Cut

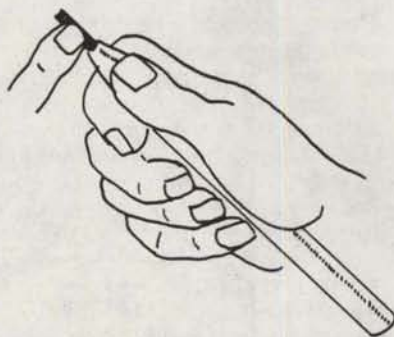


Figure 2. Pistol Grip — Push Cut



Figure 3. Pistol Grip — Pull Cut

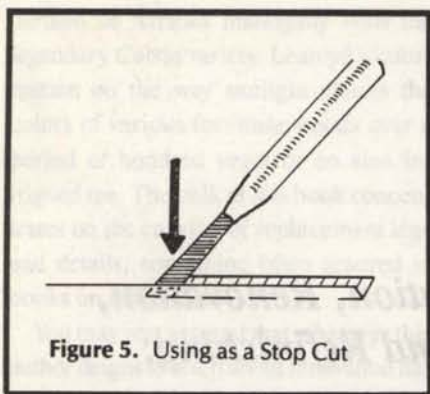


Figure 5. Using as a Stop Cut

and proceed to the shallower ones as you reach the surface you desire. For blocking out regions difficult to reach with these gouges, use riffler rasps and the power tool with engraving bits. The standard cutting heads sometimes can put too much torque on the wood and cause it to break.

Smooth curved surfaces are carved using the largest miniature #3 sweep gouge that will fit. The wider the cutting edge, the smoother the cut you can get. This is the reason for having a set with gradual changes in width. Convex surfaces are carved using the #3 gouge upside down. Because of its round handle, the tool can easily be used in any orientation and feel the same.

Changes of level are started using stop cuts. These cuts are necessary to help prevent your tool from getting away from you and cutting in the wrong area. These stop cuts are made using the skew first to delineate the line and then to remove the wood on the lower level. When cutting into the stop cut with the skew, keep the cutting

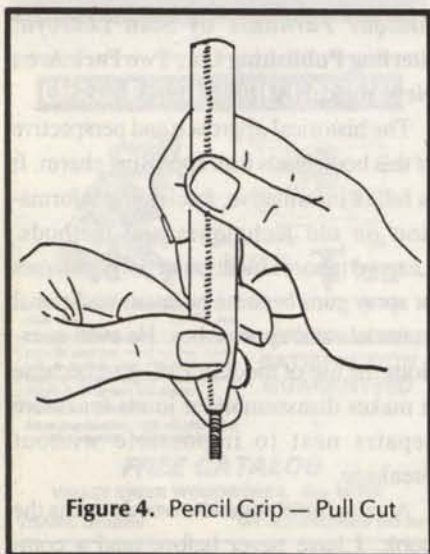


Figure 4. Pencil Grip — Pull Cut

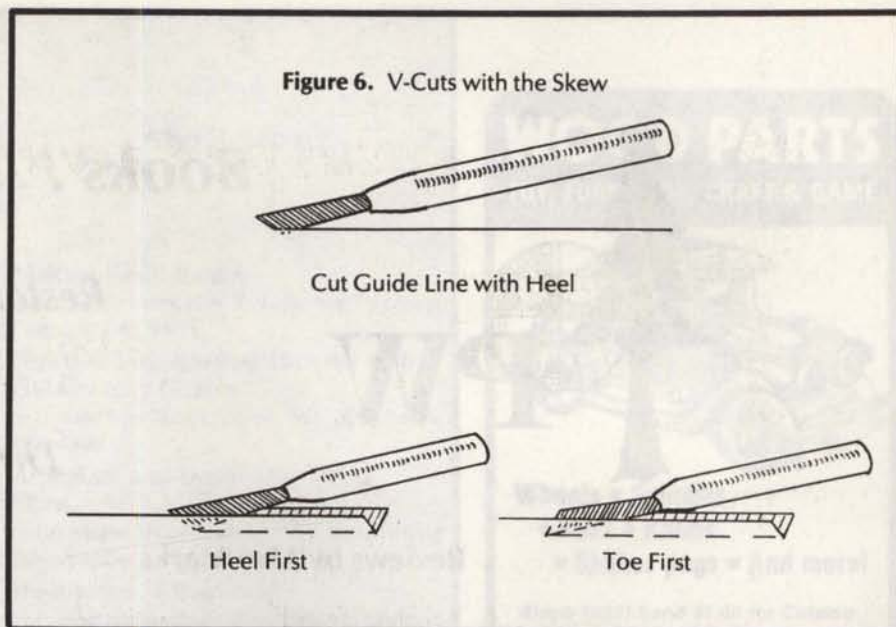


Figure 6. V-Cuts with the Skew

edge parallel to the stop cut. This technique is shown in Figure 5 where we show the skew removing wood up to the stop cut.

Tiny V-grooves are made with a skew stencil knife making three cuts. This technique is used (instead of using the V-tool) to insure that all cuts are made with the grain for smoothness. First the center line is put in, using the heel of the blade as shown in Figure 6. One of two methods can be used to make the side cuts, depending upon convenience. The first method involves cutting the two sides using the skew either upside down with the point riding in the center groove or in the regular way with the heel guided by the center cut. The choice depends upon the grain

characteristics. The cuts on both sides are made in opposite directions so that you are always carving with the grain. The other method is to use the center cut as a stop cut and carve into it from both sides. If necessary, the groove can be cleaned up using the thinner blade of a scalpel knife.

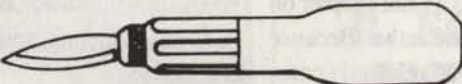
When carving a small object, leave a holding handle to be held by the vise. After all the details except those in the region near the handle have been carved, this handle is removed. If it is necessary to hold the carving in the vise again, this can be accomplished by the use of two small sponges. These will conform to the shape of the carving and will not mar it as you put on the finishing touches.

This concludes my three-part series on carving miniatures. In the next issue of *Pacific Woodworker* I will discuss the reflection method of sharpening carving tools.

Parts of this column have appeared previously in The Log, a publication of the California Carvers Guild.

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Books . . .

Restoration, Renovation, and Refinishing:

Three Approaches

Reviews by Alan Marks

***Better Than New* by Albert Jackson and David Day, Sterling Publishing Co., Two Park Ave., New York, N.Y. 10016, 1983, \$8.95.**

Of the three books on renovation reviewed here, this one and the third are by British authors. Both seem more comprehensive than the American offering below, touted as "the complete book" on the subject. Of the two British entries, *Better Than New* supplies the most information in any subject area, though it neglects carving altogether.

I particularly valued its meaty chapters on structural repairs and upholstery. The latter included detailed instructions for installing tying, stuffing and covering coil spring seats. This book contains all the essential information for doing the most common repairs, plus copious, clear drawings.

Included are chapters on finishes and polishes, surface repairs on both solid and veneered surfaces, structural repairs on chairs, tables and cabinets, and on upholstery, hardware, and specialized tools. The book also has a final chapter on using hand tools and the lathe. Because this book shows how to do relatively complex repairs using hand tools and because it is so complete I can recommend it highly to anyone who has the basic tools found in a home workshop.

***The Complete Book of Furniture Repair and Refinishing* by Ralph Parsons Kinney, Charles Scribner's Sons, 597 Fifth Ave., New York, N.Y. 10017, 1981, \$17.95.**

This book purports to be an authoritative text on repairs for anything from valuable antiques to second hand bargains. If I owned valuable antiques, however, I would do anything to shield them from some of the procedures this book recommends, such as patching with plastic wood and reinforcing glued joints with nails and metal plates, for example. Most restorers consider these an anathema. The section on structural wood repairs doesn't even mention rebuilding mortise-and-tenon joints. (It does suggest pinning them with dowels or strengthening them with metal plates.) Informative drawings are few and far between.

Nearly half the book focuses exclusively on modern finishing and refinishing techniques. How well it deals with this subject is hard to evaluate, except to state that of the three books in this sampling it has by far the most information. It includes sections on enameling, antiqued finishes, and decoupage.

Frankly, the book is a catchall. The cover brazenly claims that this "classic work" will tell the reader how to assemble a home workshop in addition to everything

else. Of its 250 pages, however, the author devotes fully three and a half to this subject. There he emphasizes, among other things, the need to teach children proper respect for tools, that lending tools is a bad practice unless it is kept under control, and that small items are best stored in peanut butter and jelly jars. Important points, perhaps, but not what I expected to find in a definitive work on renovation.

In saying something positive about this book, first published in 1950 and recently refurbished, mention should be made of the chapter on seating materials; the information here includes valuable, hard-to-find material on cane, rush, splint, and webbing seats.

***The Conservation and Restoration of Antique Furniture* by Stan Learoyd, Sterling Publishing Co., Two Park Ave., New York, N.Y. 10016, 1983, \$9.95.**

The historical approach and perspective of this book lends it an appealing charm. It is full of informative, fascinating information on old techniques and methods. Learoyd ignores mention of polyurethanes or spray guns because he favors traditional materials and approaches. He even questions the use of modern PVC glue because it makes disassembly of joints for future repairs next to impossible without breakage.

A valuable chapter on woods opens the book. I have never before read a com-

parison of African mahogany with the legendary Cuban variety. Learoyd's information on the way sunlight affects the colors of various furniture woods over a period of hundred years or so also intrigued me. The bulk of this book concentrates on the carving of replacement legs and details, something often ignored in books on renovation.

You may rest assured that whatever this author deigns to teach about renovation has proven merit and is worth knowing, but he does not tell all. One guesses that having spent a lifetime in his profession, he has reached a level where more basic skills and knowledge are taken for granted. For him, these have become second nature and instinctive. He assumes a familiarity with tools, for example, that the novice may not possess. The professional restorer and student of historical techniques will read this book for the nuggets it contains and for the feeling of integrity imparted by its author.

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Also Received

Making Wood Banks.

by Harvey E. Helm, New York, Sterling Publishing Company, 1983, \$6.95.

Fourteen Woodcarving Patterns with Old Country Charm.

by Don and Inge Church, Tacoma, WA, Inge Church, 1983, \$3.00.

Alphabets and Designs for Wood Signs.

by Patrick and Sherri Spielman, New York, Sterling Publishing Company, 1983, \$6.95.

Do-it-yourself Yearbook.

by Popular Science Books, New York, Van Nostrand Reinhold, 1983, \$17.50.

Woodturning in Pictures.

by Bruce Boulter, New York, Sterling Publishing Company, 1983, \$12.95.

The Woodworker's Reference Guide and Sourcebook.

by John L. Feirer, New York, Charles Scribner's Sons, 1983, \$35.00.

Guide to Residential Carpentry.

by John L. Feirer and Gilbert R. Hutchings, New York, Charles Scribner's Sons, 1983, \$14.95.

Furniture & Cabinetmaking.

by John L. Feirer, New York, Charles Scribner's Sons, 1983, \$17.95.

Cabinetmaking and Millwork.

by John L. Feirer, Peoria, IL, Bennett Publishing, 1982, \$39.95.

In Harmony With Wood.

by Christian Beckvoort, New York, Van Nostrand Reinhold, 1983, \$22.50.

Contemporary Furniture.

by Klaus-Jurgen Sembach, New York, Architectural Book Publishing Company, 1982, \$37.95.

Make It With Wood.

by Edgar Randall Beard, New York, Van Nostrand Reinhold, 1983, \$10.95.

Woodturning Music Boxes.

by James A. Jacobson, New York, Sterling Publishing Company, 1983, \$10.95.

The Beginner's Handbook of Woodcarving.

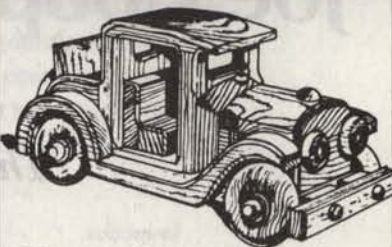
by Charles Beiderman & William Johnston, Englewood Cliffs, NJ, Prentice-Hall, 1983, \$10.95.

Early American Furniture-Making Handbook.

by Family Handyman Magazine, New York, Charles Scribner's Sons, 1972, \$9.95.

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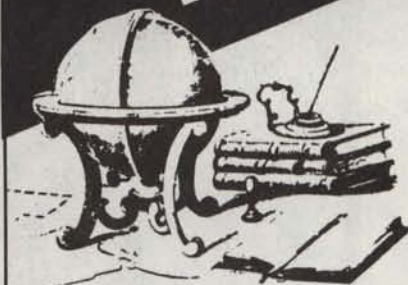
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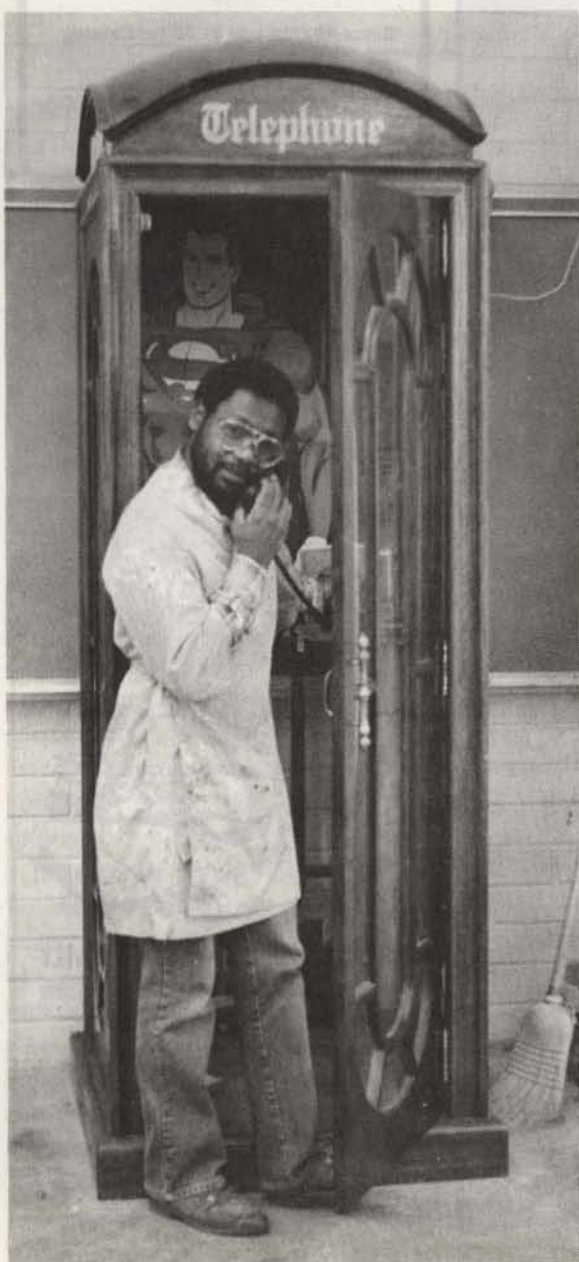
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Joe Cooper Talks Woodworking

The Man Behind State Fair Winners

by Steve Poverny



"I remember my father going into a dumpster at the lumber yard after scraps of wood," says Joe Cooper. "He'd put them in one of those large galvanized tubs that people used to take baths in a long time ago. He brought the wood home for me to play with, because I really didn't have anything else to play with, and I've been playing with wood ever since."

Joe Cooper is the woodworking instructor at Hamilton High School in Los Angeles, California. Surrounding him in the school shop, wooden forms of his own design show that he still "plays" with wood: an electric-powered train, each of its parts made of a different wood, runs around a wooden track; a full-sized English style telephone booth houses the shop phone; a miniature space shuttle of red bloodwood, black ebony, and yellow satinwood poises ready for take-off on a nearby workbench.

Many of these pieces were destined for entry into the 1983 California State Fair in Sacramento. For the past three years, work by Joe Cooper's students has placed well in the Fair's Industrial Education Exposition, and in 1983 ten of Joe's students received honors in the competition. (See photographs of some of the prize-winning pieces.)

continued

Joe Cooper, shop teacher, reaches for the phone. The English style phone booth, of mahogany with a walnut door frame, was built for the shop by Joe and his students.

Christmas and State Fair Semesters

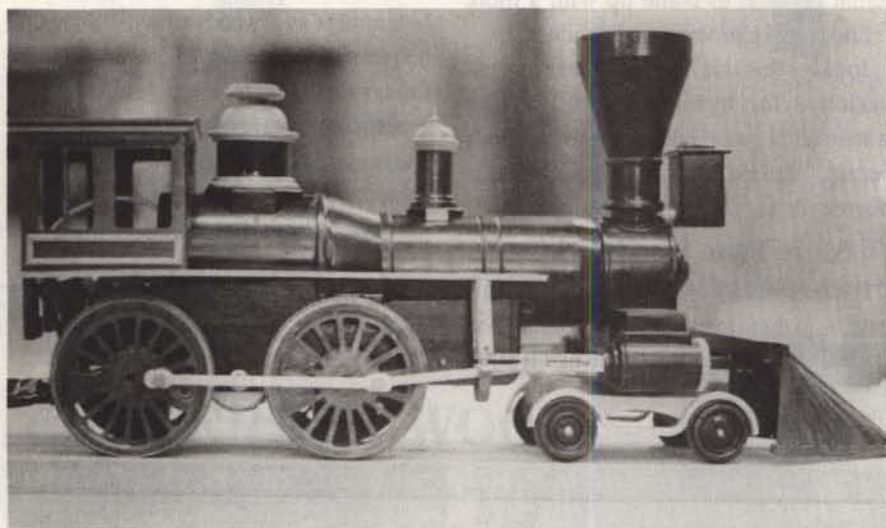
Joe has found that having his students enter State Fair competition is valuable not only for the students, but also for his program at the high school. "It gets you some recognition, and it gains you points in a lot of ways. It's helpful in upgrading the image of the Industrial Arts Department," he explains. "We need to let the public know what these students are capable of doing."

So the State Fair is a major element in

Joe Cooper's shop program. In the fall semester, which he calls his "Christmas Semester," his students work on production items that many sell during the Christmas season. "The next semester," says Joe, "Is my State Fair Semester. Some kids still have buyers that want whatever they were producing during the Christmas Semester, and they continue working on those projects. Other students get involved in custom projects that go to the State Fair competition."

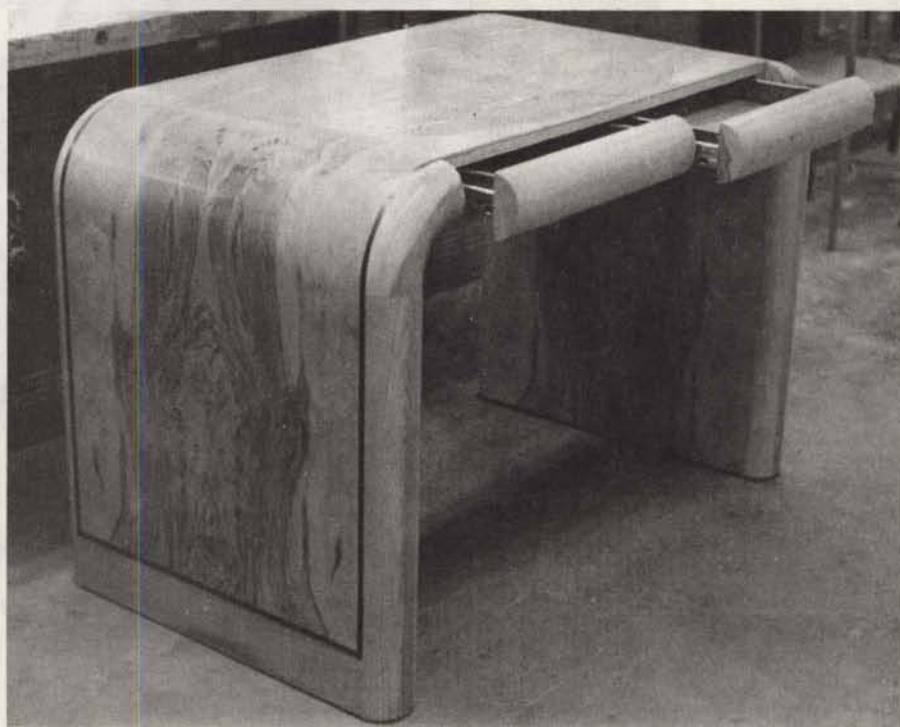
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Some of the prize-winning work by Joe Cooper's students is shown here.



Chris Coco's model train placed first in the California State Fair competition last summer. Besides the engine shown here, the ebony train pulls a car filled with shavings of holly, purpleheart, satinwood, Osage orange, and Mexican ramone.

Burled olive ash veneer is accented by strips of Brazilian bloodwood in this desk made by senior Geoffrey Deutsch. The desk earned an Honorable Mention at the Fair.



Business Perspective

Joe Cooper was a self-employed custom woodworker for twelve years, so he brings his business background into the school shop setting. "I approach woodworking here from a business point of view," he says.

Wooden-gearred pendulum clocks are Joe's newest production project. "It's in the research and development stage right now," he said last summer. "In the first part of the school year, the clocks will be test marketed, and then produced for Christmas," he explained. "I feel they have a lot of potential. And there's a lot of learning value in making a wooden-gearred clock. Each gear will be a different color and a different wood type, and that way they'll be a lot easier to keep track of. Also, students will get to know the different woods—that there's more than just pine, walnut, mahogany and oak."

The clocks will not be entirely mass produced, for each student's clock may take on different forms. "It will be up to the students to decide what types of housing they want to put it in; something pleasing to the eye, but functional," Joe said.

An Education in Exotics

Not long after he began teaching at Hamilton, Joe began experimenting with using exotic woods in shop projects. "We had a box that we made, with the standard high school woods in it," he says, "Oak, walnut, mahogany. We wanted to go beyond that, to different colors of wood, without staining them. We were able to get the wood we needed from World Timbers (a Los Angeles store that specializes in imported woods) and we took the project a step further when we found that many different colors of exotic woods came at a price the students could afford. By using some different woods, we began some different projects to come up with a more refined, more professional product."

Joe says that this has been a learning experience for himself as well as the students. "I had dealt with exotic woods before," he explains, "But not to this degree, in the variety now available."

More Than Woodworking

Joe describes how one of the State Fair entries, a box made by 11th-grader Don Schneider, evolved. "Donnie had it 80% of

the way done when he said, 'Mr. Cooper, it needs a little more.' So I suggested putting slanted struts on it coming down towards the legs. He did, and it looked nice." This is typical, Cooper says, of his teaching methods. "Students may have their own ideas about what they want to do, but just don't know how to go about doing it. I'll guide them. No job or operation is too hard; there's always a way. I like to solve problems; I get turned on by the challenge. The kids see this and say, 'Wow, we can do it together,' because now it's a challenge rather than an obstacle or barrier."

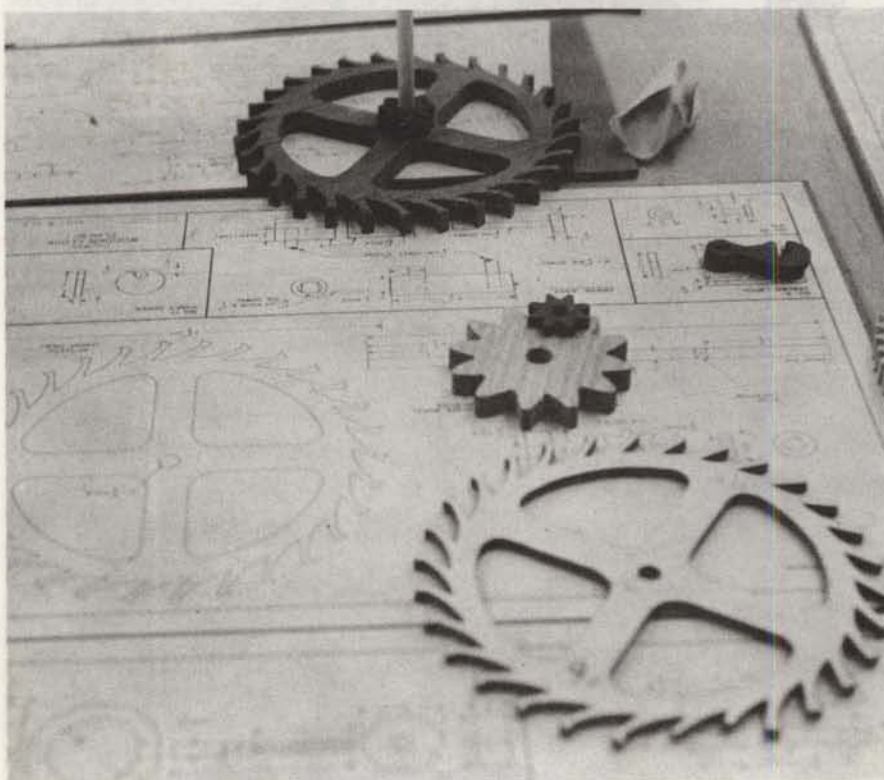
Trained at Trade Tech and Cal State L.A., Joe Cooper well remembers his own beginnings as a woodworker. "Someone helped me," he recalls. "Someone took the time, valuable time, to guide me and help me learn my craft. That's the debt I owe: someone helped me, now I'm helping someone."

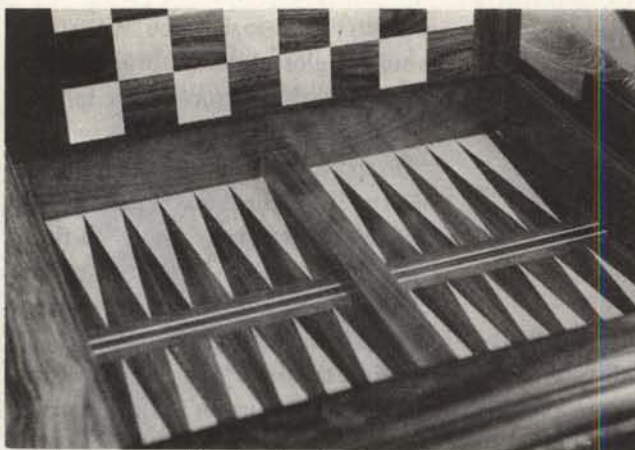
At Hamilton High School, then, Joe Cooper teaches more than woodworking. And it's a lot more than woodworking that meets the eye in his shop.

Brazilian Bloodwood

One of the woods that predominates in the work of Hamilton High School woodshop students is Brazilian bloodwood. This wood, also called "muirapiranga" and "satine," is extremely heavy and hard, with a fine grain. Unlike most red woods, Brazilian bloodwood's solid, vibrant red color when fresh cut fades only slightly with passing time. The wood is excellent for turning, shaping, and inlay, and takes sharp detail well. It polishes to a lustrous finish with fine sanding.

Clock gears of pernambuco, padauk and wenge are among those on the drawing board for a new production project. Joe Cooper's class works on a production item during the fall term, then some students move on to more custom work in the spring.





Student Don Schneider built this game table of solid Indian rosewood. Bloodwood and satinwood were used to form chess and backgammon surfaces.



About the author: Steve Poverny is a woodworker, photographer, wood researcher and an employee of World Timbers, Los Angeles, California.

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Finishing Techniques

continued from page 12

Lacquers, Varnishes, etc.

The most common furniture finish used today is a nitrocellulose-base synthetic lacquer. It is tough, water resistant, alcohol resistant, and, if properly applied, very long lasting—30 years with good care. However, it will not stand up to direct sunlight or outdoor use. Lacquer is applied with a spray gun and dries very fast. I will describe how I apply it later in this series of articles.

Spar Varnish

Spar varnish consists of various resins dissolved in linseed or tung oil. It is slow drying, normally brushed on. This is the only clear finish that I know of that can stand up to outdoor use.

Urethane Varnishes

These are very tough, scratch resistant, and waterproof. But they comes off in

sheets if exposed to sunlight. Urethane varnishes may be sprayed or brushed on.

Interior and Furniture Varnishes

Most of these are easy to apply, either sprayed or brushed on, but they are not particularly durable.

Shellac

Shellac is not water, heat, alcohol, or scratch resistant. It's very difficult to work with or apply properly. When applied by a skilled craftsman as a "French polish" it is probably the most beautiful thing that could ever happen to a fine piece of wood.

Deft®

This is a trade name for a brushing lacquer. It's quite easy to use and produces good looking results. But the results don't last long: maybe 2 to 5 years on a table.

Padding Lacquers

These give an effect similar to French polish, but are easier to use. Get someone

who knows how to show you. When I want a built-up gloss, I almost always go with a bar top quality nitrocellulose spraying lacquer.

To apply, I use a deVilbiss JGA spray gun with a #30 tip. Binks makes a comparable gun which is equally good. At first I wasted my money with a less expensive model. But I had to spend hours sanding orange peel finishes smooth. This is not the place to skimp. That gun has got to be top quality. Save up for it. Don't settle for anything less.

At first I also bought an inexpensive compressor: I had a Sears 1 hp compressor with a 12 gallon tank which could barely keep the gun supplied with air, but it did manage the job. Now I have a nice 3 hp, also a Sears, which does just fine.

In the next issue of *Pacific Woodworker* I will further explain how to apply (and how *not* to apply) these finishes with a spray gun and compressor.



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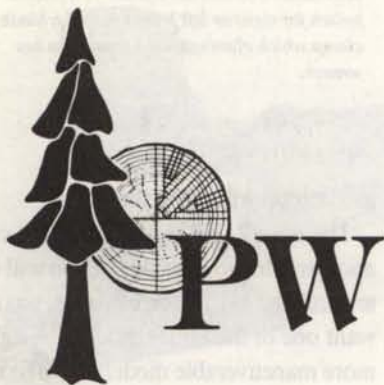
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Guide to Portable Jig Saws

New Technology Improves a Standard Shop Tool

The portable, hand-held jig saw is one of the most useful power woodworking tools. Some of the common uses of the jig saw around the shop include cutting large panels down to manageable size, before making finish cuts on your table saw, or cutting tight curves without a band saw. And nothing cuts holes in boards or panels like a jig saw.

Jig saws also see service outside the shop, for woodworking on-location. Because the saw is lightweight and easy to handle, it can be used to work with everything from small pieces of molding to large plywood panels.

Recent Improvements in Jig Saws

Two important advances in technology have produced a new generation of jig saws: these new saws have orbital action and electronic control. Electronic control, which involves the use of microchips (see *Pacific Woodworker*, Issue 15) helps the new saws maintain constant cutting speed, even under heavy loads. This improvement prolongs the life of the motor, while improving cutting efficiency. With variable speed control, the saw maintains the desired speed under all load conditions.

Orbital Action

The other important advance in jig saws is a change in the stroke of the saw blade. In orbital action jig saws, the blade moves

forward during the upward, cutting stroke. The blade then returns to the normal perpendicular position for the downstroke. The total amount of forward movement is not much: only about 1/16". But this is enough to provide significant improvement in cutting efficiency.

How does orbital action improve cutting efficiency? Since the wood chips and dust are ejected during each stroke, rather than building up around the blade, the friction of cutting is reduced. This means a cooler, longer lasting saw blade. The extra forward "kick" of the saw blade also speeds the saw through softer woods. If you have

never tried an orbital action jig saw on a piece of soft pine, run down to your nearest store and give one a try. You won't believe the way the new saws slice through pine!

On the other hand, orbital action is not suitable for every purpose. The same orbital motion which speeds the jig saw cut also leaves a rougher surface behind. If you are making a finish cut, you won't want orbital action.

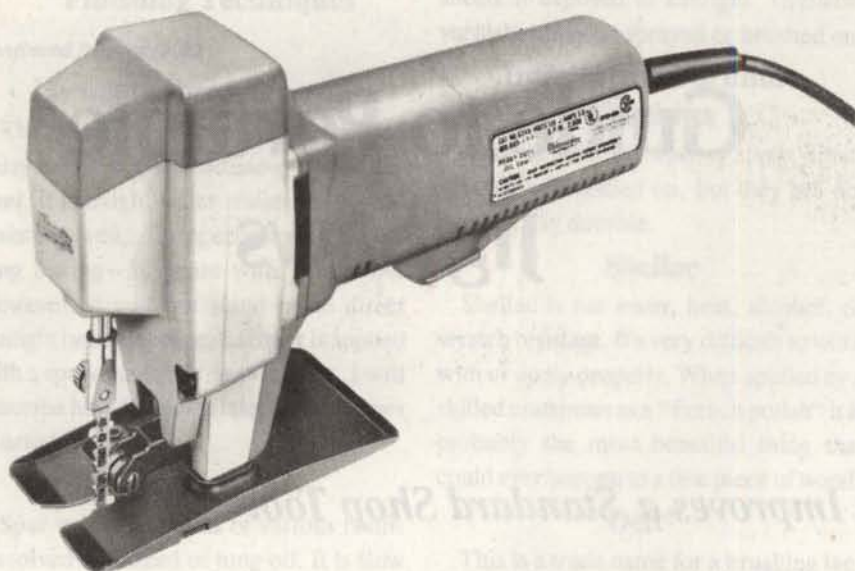
Fortunately, the orbital motion is variable in these saws: you can adjust the amount of forward motion from none (straight reciprocating action) to a maximum of about 1/16". Most saws also provide a couple of intermediate positions between these extremes.

Several factors influence the amount of orbital action you select. Orbital motion is unsuited for use on metals, for example. Even thin wood stock should not be tackled with the orbital action. The forward motion of the blade can start the stock vibrating, destroying the accuracy of your cut. You should reduce the amount of orbital motion when cutting hardwoods, as well: the harder the wood, the less orbital motion you want.

On the other hand, for straight, fast cutting of soft woods, turn the orbital action up all the way. The resulting cut won't be quite as smooth as without the orbit, but the time saved can be substantial when a finish cut is not required.

Ryobi's JSE-60 features electronically variable speed and orbital action.





Milwaukee's Model 6245 features a paddle switch for right or left hand use and a blade clamp which eliminates the need for a hex wrench.

Choosing a Jig Saw

What should you look for when selecting a new jig saw? First consider what you will do with the saw. How much do you intend to use your saw? For what kind of work? Will it get knocked around a bit, as in on-location work? Based on your anticipated usage, price is the single most im-

portant consideration. You get what you pay for, in terms of features and durability.

The most expensive saws have heavier, more powerful motors for more demanding applications. The current rating (amps) of the saw reflects its cutting power. Other features to look for in the more durable saws are full ball bearing construction, hardened steel gears and a solid roller

guide support behind the blade.

The overall size and weight of the saw is another thing to consider. If you will need to sneak the saw into tight places, you don't want one of the larger models. A lighter, more maneuverable model would be more suitable. Still another consideration is the maximum capacity of the saw: its cutting depth in wood. Larger saws usually have a maximum cut of 2 1/4 to 2 1/2".

If rapid cutting is important to you, consider buying one of the higher speed saws and one with longer stroke length. The higher the blade speed, the faster the saw can cut. And the longer stroke makes maximum use of the upward, cutting portion of each stroke.

Bosch's top-of-the-line jig saws are available with your choice of barrel or top handle and single or electronically variable speed. All four models, 1581, 1581VS, 1582 and 1582VS have orbital action.





Hitachi Models CJ65 and CJ65VA both have orbital action and transparent chip covers. CJ65 is single speed, while CJ65VA has electronically variable speed control.

A final decision you need to make is between handle styles. A top handle is best suited to making long, straight cuts, such as when cutting panelling and plywood. The top handle helps control the saw during long reaches across the panels. The barrel style with a knob on the top is harder to control at arm's length, but it's easier to maneuver and turn. So for scrolling work and more intricate cuts, the barrel model offers greater precision.

Once you've made these basic decisions about your saw, you can look for special features and standard accessories. Special features available include clear chip guards

on the front of the saw, dust blowers to keep your cutting line clear and tilting foot plates for miter cuts. The variable dust blower is a very handy feature, but be sure to turn it off when cutting metal. You don't want to blow tiny particles of metal around your shop!

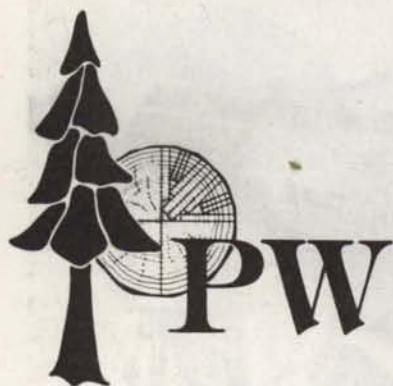
Finally, unique features like Milwaukee's "either hand" switch might influence your decision. This switch is located underneath the barrel of the saw. The Milwaukee jig saw also features a wrench-less blade holder.

Optional accessories are available for most of the jig saws. A straight line guide

aids in making cuts near the edge of a board. (Otherwise, clamp a straight piece of wood next to the cut line, and rest the saw against the wood.) A circle cutter guide is another option, especially handy if you do a lot of cutouts.

The table shown below summarizes the features found in some of the top-of-the-line jig saws now on the market. Suggested list prices are shown where information was available when we went to press.

MANUFACTURER	MODEL	SPEED (STROKES/MIN)	ELECTRONIC SPEED CONTROL	ORBITAL ACTION	HANDLE STYLE	POWER (AMPS)	LENGTH (INCHES)	WEIGHT (LBS)	SUGGESTED LIST PRICE
BOSCH	1581VS	500-3100	NO	YES	TOP	4.5	10½	5.7	225
	1582VS	500-3100	NO	YES	BARREL	4.5	10½	5.5	209
HITACHI	CJ65VA	700-3200	YES	YES	BARREL	3.5	N.A.	5.3	192
	CJ65	3200	NO	YES	BARREL	3.5	N.A.	5.3	168
MAKITA	4300BV	0-3100	NO	NO	TOP	3.5	9	5.5	192
	4301BV	0-3100	NO	YES	TOP	3.5	9	5.5	198
MILWAUKEE	6245	3100	NO	NO	BARREL	N.A.	N.A.	N.A.	N.A.
RYOBI	JSE-60	1000-2700	YES	YES	TOP	3.5	10½	5.5	N.A.
N.A. = INFORMATION NOT AVAILABLE. ALL FEATURE 1" STROKE LENGTH AND CUT TO A MAXIMUM DEPTH OF 2¼ - 2½" IN WOOD.									



Jim Summerlin: Hardwood Importer

by Gage McKinney

Before dawn on Palos Verdes Peninsula in Southern California there are few cars traveling Silver Spur Road. The office buildings along the boulevard are dark. But inside one of the buildings, behind the door of Sumwood, Inc., the chatter of a telex machine breaks the silence. Messages are arriving from sawmills throughout the world—a mill in India responds to an inquiry for rosewood, a mill in Africa has shipped two containers of

hardwoods. Late in the afternoon the telex begins clattering again, now sending messages overseas in anticipation of the next day's business.

So goes the hectic workday of James R. Summerlin, president and founder of Sumwood, Inc., a well-known and trusted hardwood importing firm. Each day Summerlin supplies the woods of the world to hardwood distribution yards throughout the country, including many on the Pacific Coast. Add to such busy days two or more overseas buying trips per year, plus plenty of domestic travel, and one gets a picture of the exciting, fast-paced life of a hardwood importer.

Any Western woodworker who has worked with an African, South American or Southeast Asian hardwood may have been using Summerlin's product. He regularly imports padauk, mansonia,

ebony and shedua from Africa; mahogany and exotic woods from South America; rosewood, keruing, jelutong, meranti, Philippine mahogany and teak from Southeast Asia and the Philippines; and many other species besides. Most of the lumber Summerlin buys is shipped directly to the distributors who are his main customers. Some species he inventories as a reserve stock for wholesalers at custom dry kilns in southern California and Mobile, Alabama. Continually he experiments with unfamiliar species that he believes may find a niche in the American marketplace.

"This really is an exciting business," Summerlin told me recently, between

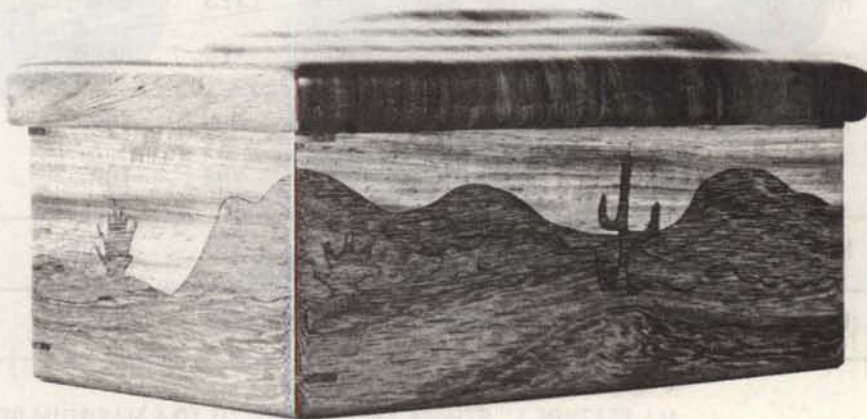


Jim Summerlin, president of Sumwood, Inc., specializes in imported hardwoods.

shedua, and a mill in Bolivia has mahogany to sell.

Later that morning, Jim Summerlin arrives at his office to find reams of messages piled up in front of the telex. He begins his workday by reading through these overseas cables. After that he spends several hours on the telephone with his customers, responding to their inquiries, accepting their orders, and offering them foreign

Kathy Blair of Sunnyvale, California has used imported hardwoods in much of her work, including the desert box shown here. The box was constructed of padauk, purpleheart and narra.



answering telephone calls. "I'm enthusiastic about getting into the office each morning." In his office, wood samples mailed from sawmills around the world pile up upon a table. The walls are lined with mementos from past years when Summerlin lived and worked overseas.

Each year Jim Summerlin travels thousands of miles to maintain good relationships with lumber manufacturers. In 1982 he made two trips to the Orient, while a trip to Africa was disrupted by a political uprising in Kenya. Summerlin believes strongly in meeting his suppliers face to face. "Some suppliers are a bit too optimistic about their own production capabilities at times, so it's important for me to see their facilities first hand. Then I can assess the mill's ability to produce specified wood products within a given time frame," he said.

Summerlin's own past experience living in the tropics (he has lived on Guam, Hawaii, and the Philippines) make him aware of the problems lumber manufacturers face overseas. "When a sawmill owner tells me there's a typhoon approaching, I know what he's up against," Summerlin said. He remembers his own experience with one typhoon that turned over his new American automobile when he was living in Guam. More than once he has had homes wrecked by tropical storms.

On the other hand, Summerlin also emphasizes that a hardwood importer has to understand the needs of the distribution yards and of the final consumer in this country. So he regularly visits furniture plants and other manufacturing facilities to

continued

About the author: Gage McKinney has himself grown up in the hardwood lumber business; his family has been active in West Coast lumbering since 1855 and he works for Verlon McKinney Company in San Jose, California. A graduate of the University of California, Berkeley, Gage is a frequent contributor to several woodworking and lumber industry trade publications.

Imported Species To Look For in the 1980's

by Jim Summerlin as told to
Gage McKinney

Genuine Mahogany has been the best value in imported hardwoods for several years. Although commonly called "Honduras" mahogany, no mahogany has been shipped in quantity to the United States from Honduras in more than a decade. Today the best supplies come from South America, particularly Brazil and Bolivia. This is one of the most stable, workable and highly prized woods in the world. Yet genuine mahogany usually costs only about 50% more than Philippine mahogany, no more than Hawaiian koa and less than black walnut. The high quality and relatively low cost of this species should appeal to craftspeople throughout the decade.

Shedua has recently become available again as a result of new capital investment in Africa. The sapwood is whitish while the heartwood is yellow brown to chocolate colored with grey to almost black stripes. Although hard and heavy, shedua is ordinarily easy to work. It should become popular in the '80s for custom furniture and high grade interior decorative work and turnery. It's often priced comparably to black walnut.

Indonesian Ebony and Rosewood. Now that ships have begun to directly link the ports of Indonesia with the United States, exotic woods from that area should begin finding their way into the American marketplace. Although the dimensions of the lumber will be small, the ebony will be sawn and selected for striped black color. The rosewood, which closely resembles East Indian rosewood, will

be a welcomed replacement for rosewoods that are no longer available from other parts of the world. Honey-colored, plantation-grown, **Indonesian Teak** will also be welcomed in the United States as an alternative to the teak which is no longer coming out of Thailand. (Only Burma remains as a source for virgin teak.)

African Woods. In general, better quantities of African species should become available during the 1980s, especially from Gaboon and Liberia. This lumber will be sawn from some of the best stands of **ebony, padauk** and **zebrawood** in the world. **Mansonia** from Africa, a lumber with golden sapwood and chocolate heartwood that resembles walnut, will also be more widely used in the near future.

For more than a generation hardwood importers in the U.S. have been waiting for new species of hardwoods to be introduced from the rich tropical forests of **South America**. They are still waiting. Although some species from the Amazon basin have been introduced in limited quantities, lumber manufacturers have not yet overcome the considerable difficulties confronting them in South America. The heterogeneous nature of the tropical forests there have made the harvesting and marketing of lumber products difficult. The weak infrastructure, especially the lack of roads and bridges, have impeded large-scale operations. Some day South America may fulfill all of the world's needs for hardwoods, but that day is still far in the future.

This photograph album/scrapbook of zebrawood, homemade plywood and ebony, with leather hinges, was made by Kathy Blair of Sunnyvale, California.

assess their use of hardwoods. And he enjoys attending seminars given by professional woodworkers and craftspeople so that he can see how they are using the wood. "A good importer," Summerlin comments, "has to know what type of wood is best for the intended use, and where to get it at the most competitive price."

During his many years in the imported hardwood business Summerlin has seen some dramatic changes. During the 1970s these changes were not always positive from the woodworker's point of view, he comments. In those years woods such as teak and dark red Philippine mahogany became far less available. At the same time some exotic species, such as Brazilian and East Indian rosewood, became practically unavailable as lumber. During the 1970s imported hardwood prices skyrocketed as a result of several economic factors. The entrance of European nations into the Southeast Asian timber market, the decline of the American dollar, the economic power of Japan, worldwide inflation, and a developing awareness of conservation in the Third World—all of these factors combined to double, triple and even quadruple some imported hardwood

prices. Also during the '70s Africa nearly dried up as a source for hardwoods because of political instability in many countries there.

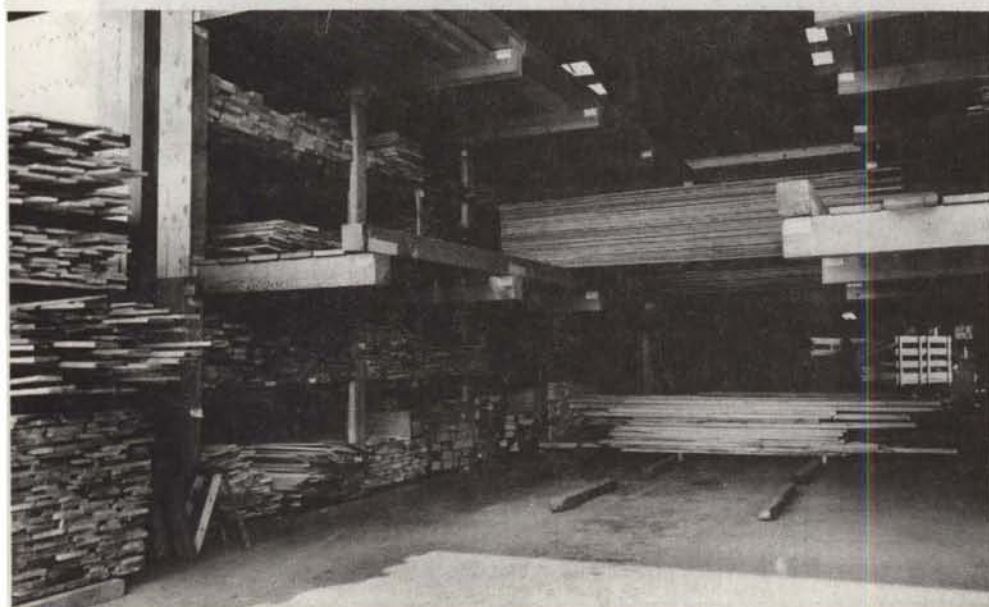
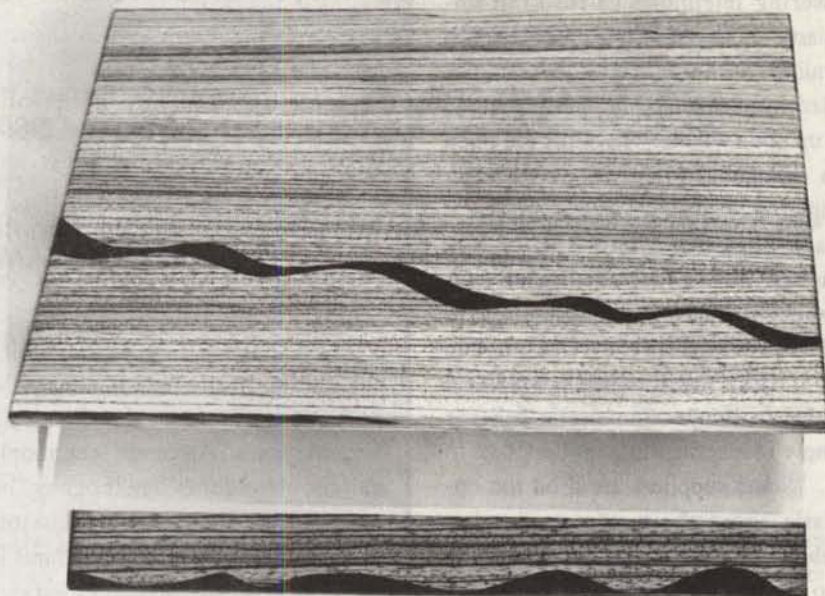
But Jim Summerlin sees a brighter outlook for the 1980s. Although he doesn't foresee prices ever returning to the levels of the early '70s, the recent world-wide recession has caused imported hardwood prices to fall slightly and to stabilize. But production has also fallen. That means any surge in demand is likely to send prices back up at least for a time. Perhaps the best news of the '80s is that restored stability

and renewed investment in Africa may help that continent to again become a major exporter of hardwoods. Many African woods that had been in short supply, such as shedua, padauk, zebrawood, mansonia, and iroko are again becoming available. In the South Pacific, Indonesia and Papua New Guinea have also developed into important new sources for hardwoods.

With all of these changing market factors in mind, and with an eye towards the future, Summerlin told me which imported species he believes will be most important to woodworkers on the Pacific Coast in the years ahead. His list includes a few woods that most woodworkers know. It also includes some species which are just beginning to find their place in the American market (see box).

But in the future wherever hardwoods are sawn, and wherever new sources of lumber are available, you can bet that Jim Summerlin will be traveling there. He will continue searching the tropics for woods for distribution yards and ultimately for woodworkers. And his telex machine will continue clattering through the nights.

Many of the species imported by Sumwood for the Southern California market are among the hardwoods available at the major distribution yard shown here.



newsletter of

Northern California Woodworkers Association

President's Report

NCWA'S last meeting was held at the "Craftsmen's Touch," the new NCWA showcase at Pier 39 in San Francisco, California. I have personally sold wooden items in lots of varied settings, and Pier 39 seems to offer something different. The most notable difference is people, lots and lots of people. Perhaps not all of these people are buyers, but they do ask questions like "What wood is that?" "How did you do that?" and "What's that finished with?". The scene contrasts sharply with the more typical quiet gallery space and talkative receptionist. The "Craftsmen's Touch" has provided all of us with a wonderful opportunity not only to show our work but to expose our work to a large cross section of the public.

There are many in our membership who do wonderfully crafted, well thought out work but who lack adequate exposure. By

adequate exposure, I mean enough to make a good living at what we really enjoy. Exposure—marketing—promotion, this area is a facet of woodworking where a group like NCWA can be of help. In promoting Northern California woodworking through places like the "Craftsmen's Touch" we can create knowledge and acceptance of our craft. This is something that will filter down to all of us, and NCWA's plans for the new year will stress this issue of promotion.

C. Stuart Welch, President

Northern California Woodworkers Association

Membership in the NCWA is available for \$35 per year (\$20 to members of local woodworking associations in Northern California.) Membership includes a subscription to Pacific Woodworker magazine. For more information write to NCWA, PO Box 832, Marshall, CA 94940.



An auction and raffle at last year's "Working with Wood" show helped raise money for the NCWA.

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Turned, Carved and Inlaid

The Making of a Crozier

by Martin R. Zschoche

The letter from West Virginia that I had been waiting for arrived in the afternoon mail. It was written on official stationery from the Episcopal Church in Wheeling. A little scared at the thought of them rejecting my bid and drawings, but mostly excited beyond my wits, I tore open the letter. "Eureka! It's a Go!" I shouted aloud. "They want me to make a crozier for the Bishop for his tenth anniversary!" Thus started an adventure in custom woodcrafting that I shall never forget—a journey into new techniques and lessons with far reaching possibilities.

A crozier, to begin with, is a shepherd's staff or crook carried by a bishop on formal occasions as a symbol of his custodianship and authority. It is usually constructed in three sections for easy disassembly and transportation in its own case. The Episcopal Diocese of West Virginia wanted a 7-foot walnut crozier in three pieces, inlaid on both sides of the crook with the shield and logo of the diocese along with a custom built carrying case. Needless to say, that was a "tall

order." All three pieces would have to be turned on a lathe and two of them would be hand carved with foliage, trefoils, gothic windows and a complete 270 degree crook. Finally, the crook itself would be inlaid with a complex heraldic shield and a scroll of Old English lettering upon both sides.

"OK," I said to myself, "Tighten up your belt and get off to the drawing board to see what this thing looks like in a full size drawing. The lower section is fairly straightforward, with simple lines and curves. The middle section has the hand hold with some leaf carving. So far so good". But it was not all to be that easy! "Look at that crook! It's about 2 1/2" round at the bottom but fans out into a paddle shape 11 inches across at the top. If that 'paddle' gets put on my lathe, it will tear the machine apart, and probably my arm with it."

The problem was clear. I had to gut this one out and make it work.

I purchased a 6 foot plank of 4" x 13" walnut, dealing my still-new business checking account a devastating blow (see Photo 1). Then I cut the plank into three

appropriate sections for the crozier parts. I turned and carved the two lower sections with relative ease. Both sections were turned with a 3" x 3/4" peg at the top for wooden screws; the middle section bored at the bottom for internal threads.

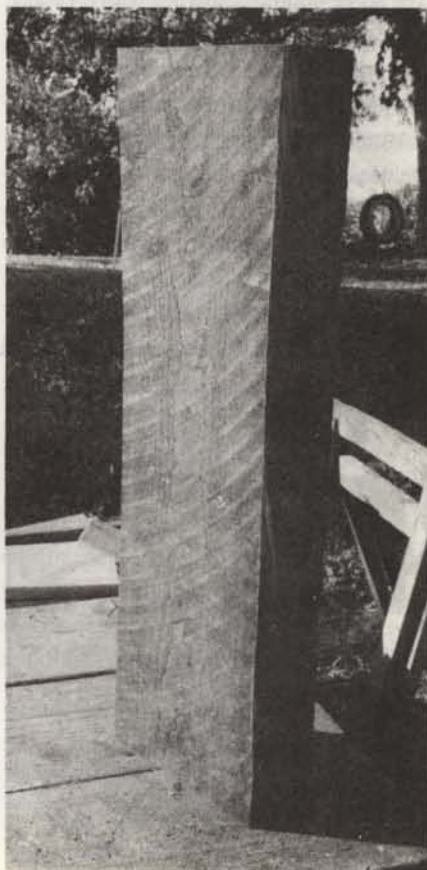


Photo 1: This large walnut blank became the upper section of the crozier.

About the author: Martin R. Zschoche, C.C.F.M. is a professional woodworker in Vista, California, who specializes in marquetry and church projects.

The Upper Section

Now came the tough part: preparing the large upper section for turning. The walnut blank measured 4" x 13" x 3' and appeared to be fairly balanced from side to side. I cut a strip off of each edge to fit the 12" capacity of my lathe. Carefully, I measured the blank to determine its exact midline, then transferred the rough outline of the crook with carbon paper to the wood face. Only the lower part of this section required turning, while the upper portion would be completely hand carved.

I next cut a trapezoidal section of exactly equal size off of each side of the lower portion to produce a "square" turning blank attached to the upper "paddle" (see Photo 2). I carefully located the longitudinal centers on each end with a cut-in "X" and mounted the board firmly in the lathe. In-

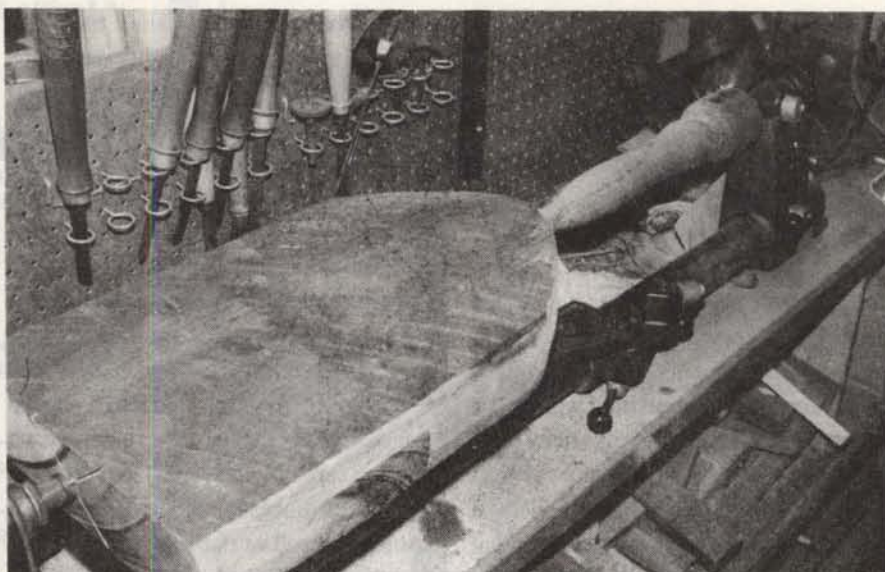


Photo 3: The lower portion of the crook was turned and carved on the lathe.

Photo 4: The author trims the crook, now locked securely in the lathe.



Photo 2: To prepare the blank for the lathe, it was necessary to trim it to fit the lathe, to remove identical sections from both sides, and to locate the exact center.



Initially I rotated the piece by hand to assure clearance and then tested it with short bursts of power while standing well clear to make sure the piece was indeed balanced. Without a doubt I would know in short order if my methods of balancing worked by whether the lathe came tearing

off its foundation. Theory said I could get away with it; nonetheless I was surprised when it actually worked.

Next, I cut down the square edges of the lower portion with a draw shave tool. Then I turned it according to plans, and later carved palm foliage into it (see Photo 3). During turning I had to be very careful to keep everything away from the high speed paddle end of the blank. One inadvertent or careless move could easily have resulted in a broken arm or something worse.

After I had finished the very tricky turning, I left the blank in the lathe for carving. This was an ideal way to hold and lock it into any position. I cut the very roughest of outlines into the crook and reduced it in thickness using large shipwright firmer chisels (see Photo 4). As I approached a thinner yet uniform thickness on both sides of the crook, I transferred a more detailed drawing to the carving. This process had to be repeated a number of times with increasing definition as I approached the final form.

I bored pilot holes for the windows and cut them open with a sabre saw. Likewise, I cut through the lower hook with a saw, after further thinning and shaping of the crook. Once I opened the hook, I could do

no more heavy chiseling, since the crook was now weakened by loss of continuous grain from end to end. I placed a cushioned center support under the shaft (see Photo 5) to prevent undue flexing while I continued carving with small chisels, gouges, knives and files. I constantly turned the carving from side to side to assure uniform thickness and symmetry.

I let in shallow triangular niches near the corners of the trefoils to be inlaid later with vermillion. I leveled a lozenge shaped shield in the center of the crook on each side and carefully flattened it to receive the marquetry diocesan shields. Likewise, I fashioned scroll work below each shield to bear the vermillion and walnut inlay in 1/2" Old English script: "For Christ and the Church" (see Photo 6).



Photo 6: Inlaying the shield was one of the final steps.



Photo 5: Removing the bottom of the crook reduced the strength of the crozier, and extra support was necessary to protect the staff.

This lettering proved to be one of the greatest challenges of the entire project. My first set of letter inlay was unsatisfactory and had to be painstakingly redone. I softened the vermillion veneer by soaking it for a day in a solution of equal parts of glue, water and glycerin, then dried it. Arduous as was the lettering step, each problem I solved by experiment advanced a process I now call "Fluid Wood Inlay," to be published soon in *Pacific Woodworker*.

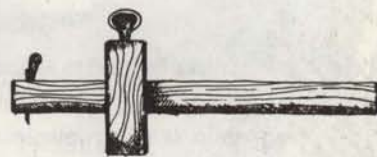
As the crook neared completion, I removed it from the lathe and cut off the mounting blocks. Then I completed the carving with gentle hand work. Final steps included boring the internal threads, sanding and finishing with tung oil and wax.

Carrying Case

I custom fit a carrying case to the three sections, using 3/8" packing case slats and 1/4" mahogany plywood. I sculpted foam rubber to each piece and lined the interior with purple velour. The outside I finished with black Naugahyde® and brass fittings.

Delivering the Crozier

One more unique step in my work on the crozier remained. I was to have the privilege of hand-delivering the crozier to the convention. In exchange for a plane ticket to West Virginia, I was asked to use my wood scraps to make 500 necklace crosses for delegates to the annual convention. The crozier had been kept a secret from the bishop all this time. When I arrived, with my own work now completed, I noted with great satisfaction the number of pleased expressions on the faces of the delegates. And I observed the sheer surprise and delight on the face of the Bishop, who, for all the world, looked like a kid with a brand new toy.



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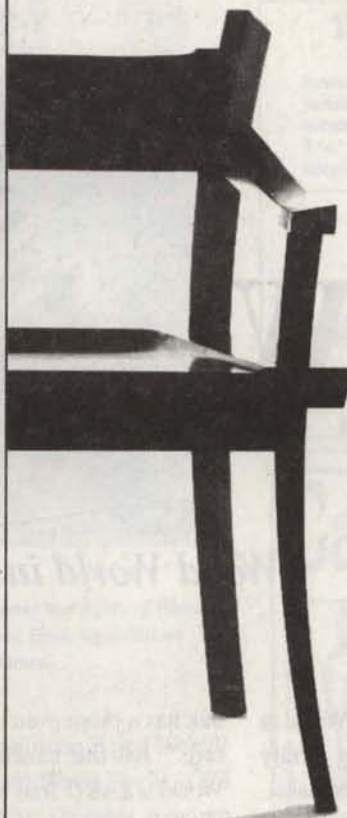
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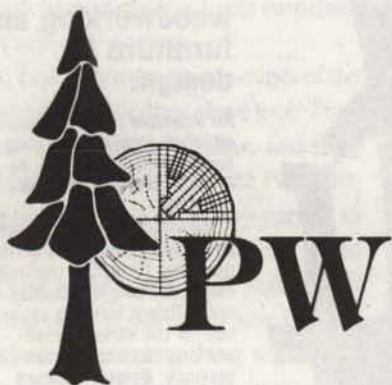
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Store Review

Wood World in Tempe, Arizona

Owner Paul McClure of Wood World in Tempe, Arizona combines a long family history of hardwood sales with personal attention and detailed advice to help his customers succeed in their woodworking tasks.

Wood World specializes in hardwoods and veneers. All hardwoods sold are Northern grown, even though this makes them more expensive. "Southern grown oak," Paul explains, "is variable in color, due to minerals in the water supply and differences in growing conditions. Northern

oak has a more even color and better texture." All the hardwood sold at Wood World is FAS (Firsts and Seconds) or better, based on higher standards than the industry norm. Almost every piece is 100% clear, as Wood World cuts out defects before stacking the lumber for sale. Most boards are supplied surfaced on two sides (S2S) and have one straight edge, which greatly reduces waste.

In addition to regular planks, Wood World also stocks some specialized lumber including walnut shorts—the ends cut

from longer stock that had a defect near one end. Short pieces under three feet long sell for about \$2.20 a board foot for 4/4 (four quarter, about 3/4" thick in finished form). The price, about half that of full sized lumber, makes the shorts ideally suited to smaller projects.

Paul also stocks a lot of turning stock, air dried 7-8 years, and such special items as long square stock for bed posts. His veneer stock includes 36 species. Wood World also sells a selection of Bosch tools, some 120 books, inlay borders and Sorby and Warren carving tools.

Paul maintains a small lumber import business, too, bringing in some exotic woods from Africa, South and Central America. By working directly with exporters in those locations, he can order wood prepared as the customer desires: sizes and lengths, surfacing, etc.

The import business has its risks, however. As an example of what can happen with transoceanic purchases, Paul offers the following story: "I was ordering some padauk from a small saw mill,



Paul McClure (right), advises a student who is building a grandfather clock.

located a few hundred kilometers up a dirt road from Abidjan, Ivory Coast, Africa. I was looking for about 10,000 board feet, cut long and wide. But you don't buy lumber by the board foot in Africa, you buy by the cubic meter. My order was about 20 cubic meters. Unfortunately, on the same dock as my order was another 20 cubic meters of padauk cut into 3" wide, short lengths, heading for Italy, where padauk is in great demand as a flooring material. It outwears oak and has more figure. Anyway, they mixed the shipments, and padauk flooring doesn't sell well in Phoenix." Paul's solution to the problem? He has been offering the narrow padauk planks at a greatly reduced price: cheap.

Paul provides more than high quality lumber at reasonable prices. He works with the customer to help that customer achieve success in his projects. This help includes cutting special parts for projects, custom milling, design and construction tips. For example, a customer wanted to blend several different woods in a flat panel. Paul cautioned the customer about the need for pegs to keep the panel stable, since each wood moves differently. For that operation the customer would need a drilling jig. In addition, the assembled panel would be hard to sand, since each wood has a different hardness. A wide belt sander would be the way to get a smooth surface, Paul advised. He ascertained that the customer understood what would be involved before buying the first board, and even suggested a local outlet for a wide belt sander service.

Paul teaches some structured classes as well as offering free advice on all stages of a woodworking project. Wood World's classes include marquetry, carving, wood-burning, cabinet making, clock making and others. For a complete schedule of current classes taught by Paul and his wife, contact the store. And woodworkers don't even have to leave home to get some advice from Paul. A local radio station (KTAR) runs a call-in show about woodworking problems, and Paul helps people remove stains, repair wobbly chair legs and more over the airwaves.



Paul and his wife are owner/managers of Wood World in Tempe, Arizona. Here, Paul custom mills a board for a customer.

For more information on Wood World, contact Paul McClure, Wood World, 1705 West University Drive, Tempe, Arizona 85281 (602) 966-2444.

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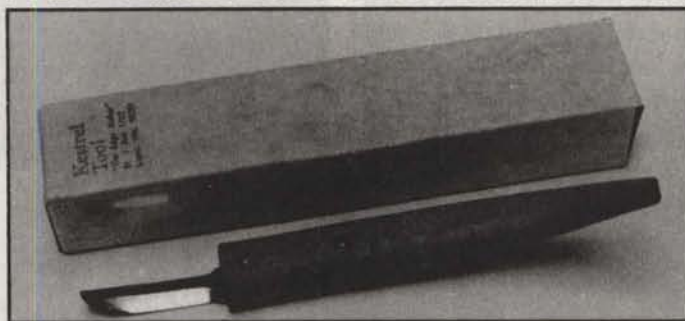


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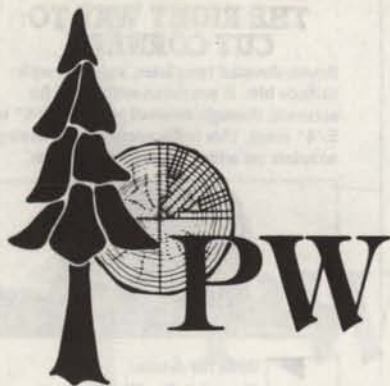
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Regular price \$41.00

Introductory special \$35.00

Kestrel Tool

Route 1, Box 1762, Lopez,
Washington 98261 (206) 468-2103



News and Notes

New Products

Safety Sensor Saves Tools

T&T Electronics now offers the *Safety Sensor*, a little black box which shuts off your power saw or other tool the instant the motor starts to bind or jam. Unlike the thermal protection built in to many motors, the electronic *Safety Sensor* is said to act very quickly, reducing damage to the power tool. The sensitivity of the Sensor can be adjusted to fine-tune the cutoff to your preference. It also shuts off the tool when the power fails or the voltage drops, preventing damage to the motor and eliminating unexpected tool operation when the power returns. For more information contact T&T Electronics, 519 Center St., Healdsburg, CA 95448 or call (707) 433-7365.



1984 Woodworking Catalogs

Woodcraft Supply has two colorful tool catalogs for 1984. The 100 page main catalog costs \$3 and the 32 page supplement is free. Write to Woodcraft, PO Box 4000, Woburn, MA 01888.

The Woodworker's Store has a 112 page color catalog of tools, hardwood, veneers and special hardware. Send \$1 to The Woodworker's Store, 21801 Industrial Blvd., Rogers, MN 55374.

Constantine has released their 1984 catalog, with 112 pages of fine woods, veneer kits, tools and hardware. The catalog is \$1, or the catalog plus a set of 20 wood samples is \$2. Write Albert Constantine and Son, Inc., 2050 Eastchester Road, New York, NY 10461.

The Poor Man's Catalog offers a wide selection of more than 300 plans and how-to projects, with directions written in a very down home, folksy style. The catalog (#5) costs \$3 from Y's Choice!, Route 1, Box 91, West Buxton, ME 04093.

Cedar Chest Plans

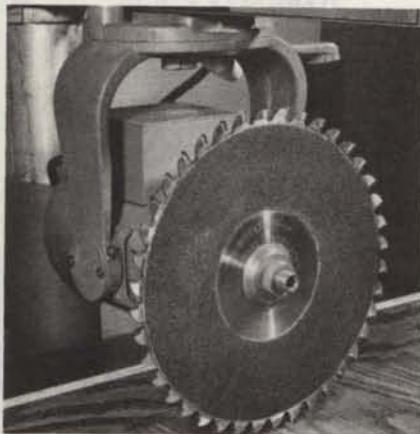
The Woodworker's Store has added a deluxe cedar chest plan to their extensive line of do-it-yourself craft plans. The plans include detailed instructions and a complete materials list. The Cedar Chest Plan G8415 sells for \$4.50 (including postage) from The Woodworker's Store, 21801 Industrial Blvd. Rogers, MN 55374.





Improved Sanblade

United Saw Technologies International (USTI) has improved its circular *Sanblade*, which sands as it cuts. The improvements include a thinner profile for less waste, finer grit (80) on the blade for a smoother finish and a larger abrasive surface. The *Sanblade* features a thick, hand flattened steel base and 40 extra-large carbide tips. Custom 60 and 80 tooth models are also available. Contact USTI, Box 941, Clifton, NJ 07014 or call (201) 471-3333.



Power Carving Bits

L.R.Oliver & Co. now offers Karbide Kutzall® rotary cutters. These bits feature sharp structured tungsten carbide teeth with a very large cutting surface. The Kutzall comes in a wide range of shapes and sizes, and is available from L.R.Oliver & Co., 9974 Dixie Highway, Anchorville, MI 48004 or (313) 725-1230.



Grommets for Computer Furniture

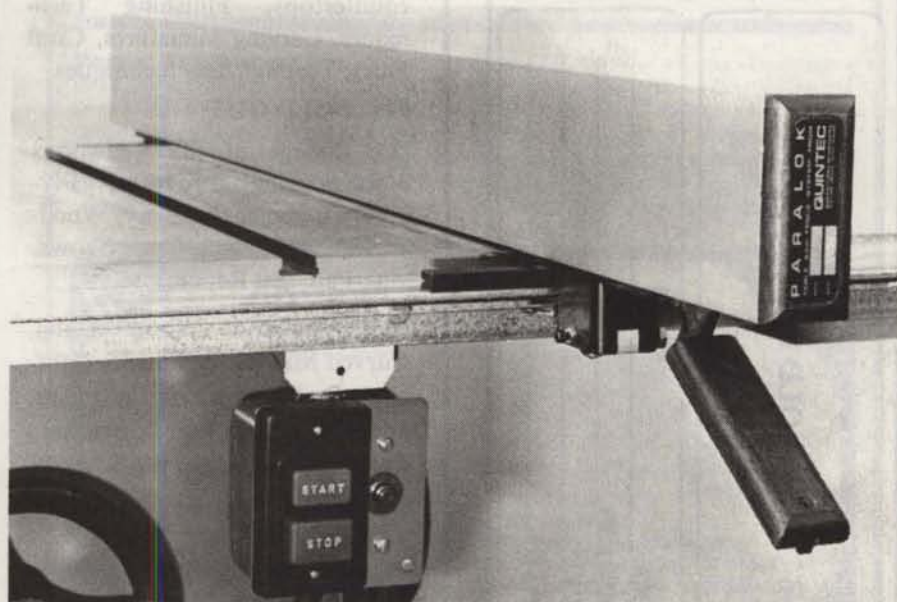
Doug Mockett & Co. has a new line of plastic grommets for feeding wires, cables and computer paper through desks and work surfaces. The attractive grommets and slot liners eliminate snags and speed construction. The grommets come in a variety of sizes and colors, including some plated steel grommets for high quality work. Contact Doug Mockett & Co., Box 3333, Manhattan Beach, CA 90266 or call (213) 545-6174.

New Workbench

Tennessee Hardwood Co. has a new workbench: the Eurobench®. 70" long and 30" wide, the laminated oak bench top is 2 1/2" thick, with square dog holes for stops. According to Tennessee Hardwood Co., the workbench compares very favorably with imported benches costing many times the \$144 price (plus freight) for the Eurobench. Contact Tennessee Hardwood Co., PO Drawer 220, Woodbury, TN 37190 or call (615) 563-2223.

Table Saw Fence

Quintec® Manufacturing has produced a new precision table saw fence, the Panalok®. The Panalok features a single closed loop of aircraft cable running under the table which holds the fence in exact parallel position. A dual locking mechanism locks both front and back with a single lever. Mounting rails for the fence are available in lengths from 4 to 8'. For more information on the Panalok fence, contact Quintec Manufacturing, 4525 37th Ave., Portland, OR 97211.



continued on page 51

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#14: College of the Redwoods Woodworking Program, Plywood Computer Cabinetry, Woodworking in Hawaii, Craft Shows, Mag-Pad Test Report.

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Volume 2, Issues 7-12. Complete set \$6.00, while supplies last. Sam

Maloof, Woodworking in Hawaii, Tsumura saw blade, Making wooden boxes, Router Guide, Wood finishes Bill Horgos, Heniker Saw, Carving a Pelican, Bud Vases, Mail Order Woodworking, Establishing a Woodworking Business, Sealacell finish, and more.

Volume 1, Issues 1-6, complete set \$5.00, while supplies last. Table Saw guide, Wooden Boxes, Sanding Belt cleaner test report, Chair Design, Rima Sharpening Jig Test report, Profiles of sculptor Lucius Upshaw and carver Bill Booras, Stanley dovetail fixture test, special issue on dust, noise prevention, tests of Carter band saw guide and Milwaukee electric chain saw.

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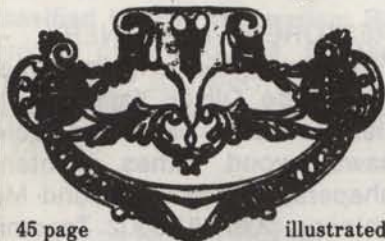
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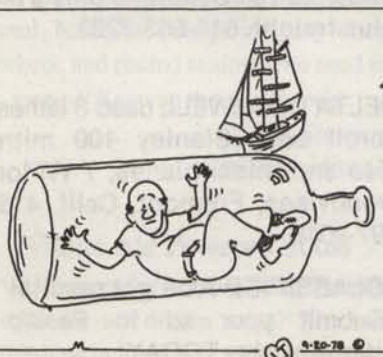
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DELTA ROCKWELL used 3 lathes, scroll saw; Stanley 100 mitre vise and misc. planes; 7 Wilton woodvises, Fremont, Calif. 415-797-9046.

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PUBLICATIONS

ATTENTION CRAFTSPEOPLE — The Goodfellow Catalog Press, publishers of *The Goodfellow Catalog of Wonderful Things* No. 3, is sponsoring a crafts fair at Oakland's Festival at the Lake on June 1, 2, and 3, 1984. Attendance in excess of 50,000, low booth fee, excellent fair. Limited space. For an application, write now: Festival Craft Market, c/o Goodfellow Catalog, Box 4520, Berkeley, CA 94704. (415) 428-0142.

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MISCELLANEOUS

FREE! Information on 100 Satellite Television Channels plus free catalog of proven do-it-yourself plans/kits for easy, low-cost, attractive satellite antennas. Also, wholesale electronic components. GFI-13, Box 9108, Missoula, MT 59807. 406-642-3405. "Consumer Guide to Satellite Television" — \$6.95.

WOOD PRODUCTS

MAKE TOYS — Plans, Kits — Hardwood Wheels, Parts, Dowels Catalog \$1.00 — Cherry Tree Toys, Belmont Ohio 43718.

FOR SALE

ESTABLISHED FAMILY WHOLESALE WOODWORKING business for sale in Southwest Colorado. Unlimited potential. Marketed nationally. Stacks of customers. Includes huge enviable workshop with main street frontage, vacant commercial land, astounding inventory of machinery and stacks of customers. A rare opportunity for the right smart person!!! \$159,500 total. \$60M down, assume existing mortgage, and confident owner will finance at 10%. Box 567, Bayfield, Colorado 81122 (303) 884-9667.

Classified Market Information: Rate: 30 cents per word, minimum of 25 words. Payment must accompany all classified ads. Border, \$3.00. Deadline for ads for Issue 18 is February 20, 1984. *Pacific Woodworker*, Box 4881, Santa Rosa, CA 95402 (707) 525-8494.

Letters

continued from page 4

Liked Reader Survey

I wish to commend your efforts to get a profile of your woodworking readers (*Pacific Woodworker*, Issue 16). It must be like trying for a profile of fishermen, farmers or school teachers—great variety! Could you continue your efforts but consider these categories: full time professional, hobbyist, cottage industry woodworkers, and retired seniors who need extra money? Keep up the good work!

J. Simmons
San Francisco, CA

Wants Air Powered Tools

Why has not the woodworking fraternity discovered air driven tools? The auto refinishing industry and carpentry groups

have many available. I have a good compressor, but where can I find someone with a large selection of drilling, sanding and perhaps cutting tools driven by air?

Robert J. McNeil, M.D.
Cambria, CA

There are many woodworking tools driven by air. In addition to spraying equipment used primarily in finishing, there are numerous power tools which use a compressor for power. For example, Sioux makes a line of hand drills, Bosch sells an air jig saw, and several companies produce air-driven sanders, including Sioux, Nitto Kohki and National Detroit. There is also a line of air-driven clamps (see Pacific Woodworker Issue 16, page 6). (Note: since we first responded to Dr. McNeil, he has informed us that he has

also located an aero disc sander of the clip-on type made by Merrill.)



BUMMER # 297
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YOU BREAK THE TIP OFF YOUR FAVORITE
NEEDLE FILE (THAT YOU'VE HAD FOR YEARS)
AND THEY SELL TWELVE TO A SET."



Wood Types

Imbuia

a Brazilian Wood Unfamiliar to Most Woodworkers

by David Paul Eck

Imbuia is plentiful in the forests of Brazil, but high Brazilian demand for this wood leaves little for export. Fortunately there is low demand for the wood in this country, simply because so few woodworkers here are familiar with imbuia.

Imbuia is a beautiful dark wood that machines well, works well with hand tools, is reasonably stable, and accepts a finish nicely. It is a heavy, dark wood, often highly figured. Imbuia is not subtle, reserved, nor understated. It has a strong, serious presence—almost imposing. Imbuia ranges widely in color from a warm golden brown to a dark rich brown, often with black streaking throughout. Some planks display a beautiful fiddleback pattern, some have a birdseye-like pattern,

and others have swirling patterns of black and reddish brown. This incredible diversity in color and figure of imbuia is both an asset and an obstacle. While the figure and color diversity within the species gives the woodworker more possibilities for the visual composition of a cabinet, *extreme* diversity can be an obstacle to visual harmony.

If you are buying imbuia in the rough, a lightly colored plank looks identical to a darkly figured plank; but it would be impossible to use these two extremes harmoniously in one piece. When purchasing imbuia in small quantities, therefore, it would be wise to preview the material before leaving the lumber yard. I usually plane a small area of each plank to get a look at the color and figure. Unfortunately, in this country lumber may be processed like shuffled decks of cards, so the wood-

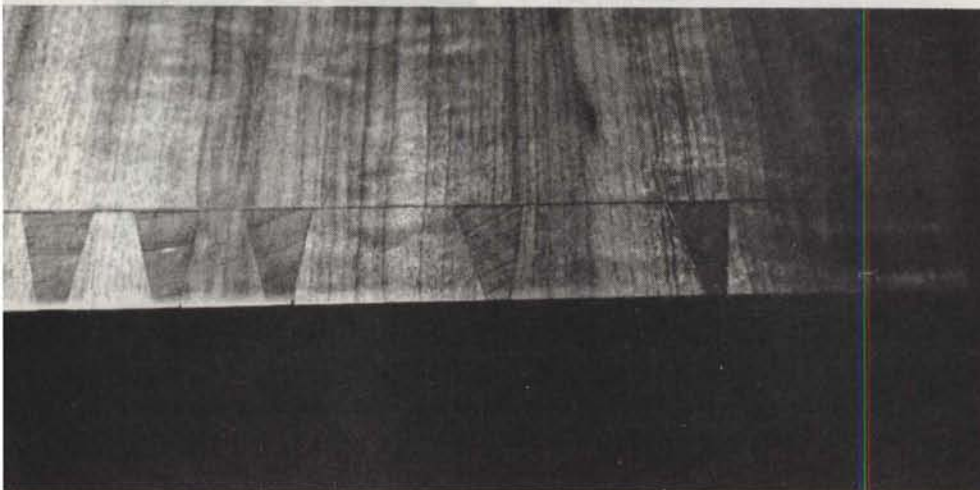
worker has to dig until he finds sequenced planks, or at least similar ones.

Unlike many South American hardwoods, imbuia is not difficult to machine. In fact, it works very much like walnut. It cuts easily, but does build up a tar-like resin on cutting tools. Ironically, the resinous quality of imbuia does not seem to inhibit effective gluing; I find that aliphatic resin glues work just fine for glue-ups. Imbuia has a spicy smell when machined. Some woodworkers find this to be pleasant, while others react to the dust created and find it to be irritating. In rare cases, imbuia, like many other resinous tropical hardwoods, can cause skin rash and sneezing, especially if ventilation is not adequate. (See *Pacific Woodworker* Issue 3, September/October 1981 for information on ways to avoid dust problems in the small shop.)

When kiln-dried, imbuia can shrink dramatically, severely compressing one area of fibers more than surrounding areas. Once dried, however, imbuia remains stable and strong.

Imbuia planes well to a medium luster, or can be easily sanded. It seems best finished with a clear oil. Since its color,

The author's desk of imbuia and padauk was displayed at Gallery Fair in Mendocino, California in 1982.



David Paul Eck is a furniture maker in North Bend, Washington, whose furniture is shown in galleries on the West Coast. He also teaches handjoinery and furniture construction in Bellevue, Washington.

working characteristics and cost are close to black walnut, imbuia provides a good alternative to black walnut when a warm toned dark wood is desirable. Also, because of the availability of large imbuia trees, the woodworker often can find large planks, free of knots and sapwood.

Imbuia is a distinctive dark wood, cooperative with tools, and a pleasure to work. Considering the usual quality of domestic black walnut these days, it is a surprise to me that imbuia has not found greater acceptance among woodworkers as a fine cabinet wood.

James Krenov (left) looks at the author's desk of imbuia and padauk.



News and Notes

continued from page 45

Calendar

continued from page 16

Wooden Satellite Antenna

Well, maybe not *all* wood, but the P-611 11' satellite receiving dish kit has a red-wood frame. This dish with associated electronics may allow you to receive as many as 100 different channels. Several different kits are available, along with instructions and electronic components. Contact Ghost Fighters, Inc., 3206 Highway 93, Stevensville, MT 59870 or (406) 642-3405.



Mar.18. Alameda, CA.

Furniture Design and Construction. 9:00 am to 4:00 pm. Fee: \$50.00. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.19. Berkeley, CA.

Getting Started: Project Planning. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Mar.19. Berkeley, CA.

Stenciling on Wood. The Cutting Edge, 1836 Fourth St., Berkeley, CA 94710 or (415) 548-6011.

Mar.22. Los Angeles, CA.

Basic Routing. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Mar.24. Alameda, CA.

Router Template Seminar. 10:00 am to 1:00 pm. Woodline, 1731 Clement Avenue, Alameda, CA 94501 or (415) 521-1810.

Mar.24. San Diego, CA.

Photographing Your Work. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Mar.24. San Diego, CA.

Toymaking. The Cutting Edge, 7626 Miramar Road, #3500, San Diego, CA 92126 or (619) 695-3990.

Mar.24. Los Angeles, CA.

Advanced Routing. The Cutting Edge, 3871 Grand View Blvd., Los Angeles, CA 90066 or (213) 390-9723.

Mar.24. Strathmore, CA.

San Joaquin Fine Woodworking Association Annual Meeting. 11:30 am—1:00 p.m. Strathmore High School Woodshop. Contact Mark Webster, Box 789, Porterville, CA 93258 or (209) 781-4074.

Mar.24. Berkeley, CA.

Basic Tools of the Woodworker workshop with Simon Watts. The Cutting Edge, 1983 4th St., Berkeley, CA 94710 or (415) 548-6011.

Mar.24-25. Strathmore, CA.

Handsaw Sharpening, Drawer Making and Joinery with Carl Westburg. Contact Mark R. Webster, P.O. Box 789, Porterville, CA 93258 or (209) 781-4074.

Mar.31-Apr.1. Santa Rosa, CA.

Woodcarvers Festival. Contact Sonoma County Woodcarvers, 1263 Rim of the Redwoods, Sebastopol, CA 95472.

Apr.1-May 1. Fort Bragg, CA.

Fine Woodworking Program of College of the Redwoods will be accepting applications for the 84-85 school year. Fine Woodworking Program, 440 Alger St., Fort Bragg, CA 95437 or (707) 964-7056.

May 4. San Diego, CA.

Lecture/Workshop with James Krenov. Lecture on Fri. night, workshop on May 5 & 6. Contact San Diego Fine Woodworkers Assoc., P.O. Box 99656, San Diego, CA 92109.

May 5-6. San Diego, CA.

Two-day workshop with James Krenov. Contact San Diego Fine Woodworkers Assoc., P.O. Box 99656, San Diego, CA 92109.

June 1-3. Oakland, CA.

Festival at the Lake Craft Market. Contact Festival Craft Market, c/o Goodfellow Catalog, P.O. Box 4520, Berkeley, CA 94704.

June 23-24. Sacramento, CA.

Pacific Flyway Decoy Association 14th Annual Wildfowl Festival. Contact Susan Nesbit, Pacific Flyway Decoy Assoc., P.O. Box 536, Quincy, CA 95971.



Stave Bowl Construction

Don't miss Issue 18 of

Pacific Woodworker

In the next issue . . .



Crispin Hollinshead Makes Miniatures

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(see page 46)

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